

Utilizing Microsoft Excel for Human Resources Management

By Palani Murugappan



Employee driven organization

Far sighted employers will definitely agree that employees are the greatest asset of an organization. The human resource perspective is the main driving factor that contributes towards the success of any employee driven organization. With the right “fit”, companies can go a long way towards ensuring the success based on the effectiveness of their employees.

One aspect of realizing the above is to ensure that besides having the tools to succeed; employees must also have the necessary skills that must be continuously and periodically updated to reflect the use of tools in achieving the growth and success of the organization. This is where the element of training plays a crucial role.

When the management decides on implementing something new, it is always based on the “haves” and “have nots”, starting with the operational data, and followed closely by utilizing employees to manage the new task. There will come a point in time where management will require ad-hoc reports on the progress and development of the new task. Many data systems in place today can produce various reports. However, to produce ad-hoc reports based on non-standard conventions produced by the system, one of the better tools to gather meaningful information is to map the data into spreadsheet format and perform data analysis of it. One such tool is Microsoft Excel.

Analyzing human resources data

Let us look at the data below. It represents a simple employee database with details such as Employee Name, Date the employee joined the organization, Salary, Department, Sick Days taken in a year, etc.

	A	B	C	D	E	F	G
1	Full Name	Hire Date	Salary (Per Year)	Bonus (Per Year)	Overtime (Per Year)	Department	Sick Days (Per Year)
2	Rose Malindo	09-05-07	\$ 29,000.00	\$ 7,250.00	\$ 160.00	Finance	3
3	Richard Gazza	16-01-03	\$ 25,000.00	\$ 6,250.00	\$ 750.00	Administration	8
4	Christopher Barnes	13-05-08	\$ 65,000.00	\$ 16,250.00	\$ 750.00	Human Resources	6
5	Margaret Pavlova	20-07-07	\$ 120,000.00	\$ 30,000.00	\$ 780.00	Finance	8
6	Johnathan Whitaker	08-06-04	\$ 27,000.00	\$ 6,750.00	\$ 2,160.00	Marketing	9
7	Said Alwi	01-03-06	\$ 56,000.00	\$ 14,000.00	\$ -	Marketing	7
8	Janalee England	21-10-01	\$ 190,000.00	\$ 47,500.00	\$ -	R&D	6
9	Eric Bride	25-09-05	\$ 24,000.00	\$ 6,000.00	\$ 1,400.00	Administration	7
10	Matthew Tart	16-02-02	\$ 30,000.00	\$ 7,500.00	\$ 3,000.00	Customer Support	4
11	Shireen Bart	30-04-03	\$ 78,000.00	\$ 19,500.00	\$ 1,800.00	Finance	1
12	Joshua Daniel	22-03-03	\$ 31,000.00	\$ 7,750.00	\$ 310.00	Administration	4
13	Roshan Carney	01-05-07	\$ 46,000.00	\$ 11,500.00	\$ 930.00	Human Resources	2
14	Joanne Bendy	04-05-01	\$ 32,000.00	\$ 8,000.00	\$ -	Sales	9
15	Ricardo Bender	26-10-07	\$ 48,000.00	\$ 12,000.00	\$ 640.00	IT	8
16	Willow Naren	18-10-00	\$ 96,000.00	\$ 24,000.00	\$ 2,040.00	Customer Support	8
17	Donna Burger	23-08-07	\$ 140,000.00	\$ 35,000.00	\$ 3,060.00	IT	5
18	Kelley Ross	09-01-06	\$ 84,000.00	\$ 21,000.00	\$ 1,050.00	Finance	7
19	Sara Webber	09-10-07	\$ 35,000.00	\$ 8,750.00	\$ 2,100.00	R&D	8
20	Gina Capone	02-04-06	\$ 160,000.00	\$ 40,000.00	\$ -	Sales	1
21	Ian Carver	13-12-08	\$ 185,000.00	\$ 46,250.00	\$ 1,800.00	Marketing	1

What analysis can we perform from the above? To keep it simple, let us look into the number of employees who have been with the organization on a yearly basis. The conclusion that can be drawn is in the first year of operations, there was only one employee. As the years progressed, it is obvious that the organization has grown to 20 employees at the end of year 2008. Using a built-in function of Excel, the calculations have been tabulated as below.

Cut-off Date	Year	Employee
31-12-00	2000	1
31-12-01	2001	3
31-12-02	2002	4
31-12-03	2003	7
31-12-04	2004	8
31-12-05	2005	9
31-12-06	2006	12
31-12-07	2007	18
31-12-08	2008	20

Next, we can also deduce the total number of employees based on the salary scale as displayed below. How do we counter check if the calculations are correct? Look at the header Employee Count on the right diagram. As you add previous cell of the Employee Count (cell Q2) to the current cell (Q3), the total is reflected on the same row as in cell N3 (total count of 8). By adding the total Employee Count in column N (which adds to 20), the last figure in the No. of Employees column is also 20 (cell N10). Again, Excel functions were used to perform the tabulation.

	M	N
1	Salary Scale up to:	No. of Employees
2	\$30,000	4
3	\$40,000	8
4	\$50,000	10
5	\$60,000	11
6	\$70,000	12
7	\$80,000	13
8	\$90,000	14
9	\$100,000	15
10	\$200,000	20

	P	Q
1	Salary Range	Employee Count
2	<\$30,000	4
3	\$30,000-\$40,000	4
4	\$40,000-\$50,000	2
5	\$50,000-\$60,000	1
6	\$60,000-\$70,000	1
7	\$70,000-\$80,000	1
8	\$80,000-\$90,000	1
9	\$90,000-\$100,000	1
10	>\$100,000	5

Analyzing salary details

A simple payroll system calculates aspects of an employee’s salary. However, some may be limited to the types of analysis that can be performed. For example, in the illustration below, Excel can be utilized to perform an analysis of employees based on Department. The analysis below indicates the Number of Employees based on the various departments, their average salaries, number of sick days taken and the average sick days taken over a year. By going purely on the Total Sick Days taken, it appears that the Administration and Finance departments have the highest casualty (total of 19). However, probing it in detail, you find that that average sick days taken by the IT and R & D departments are the highest (average of 7). Note that the highest average salary is for the R & D department. This simply states that the employees in the R & D department are drawing a much higher salary compared to the other departments.

Department	Number of Employees	Average Salary	Total Sick Days	Average Sick Days
Administration	3	\$ 26,667	19	6
Customer Support	2	\$ 63,000	12	6
Finance	4	\$ 77,750	19	5
Human Resources	2	\$ 55,500	8	4
IT	2	\$ 94,000	13	7
Marketing	3	\$ 89,333	17	6
R&D	2	\$ 112,500	14	7
Sales	2	\$ 96,000	10	5

Further probing the database, you will find that a large portion of the salary goes towards the Finance department, followed by the Marketing department. Note that the Total salary can be ranked (from highest to lowest) using an Excel function as in the Rank column below. Decision making process becomes easier now.

Department	Salary	Bonus	Overtime	Total	Rank
Administration	\$ 80,000	\$ 20,000	\$ 2,460	\$ 102,460	8
Customer Support	\$ 126,000	\$ 31,500	\$ 5,040	\$ 162,540	6
Finance	\$ 311,000	\$ 77,750	\$ 3,790	\$ 392,540	1
Human Resources	\$ 111,000	\$ 27,750	\$ 1,680	\$ 140,430	7
IT	\$ 188,000	\$ 47,000	\$ 3,700	\$ 238,700	5
Marketing	\$ 268,000	\$ 67,000	\$ 3,960	\$ 338,960	2
R&D	\$ 225,000	\$ 56,250	\$ 2,100	\$ 283,350	3
Sales	\$ 192,000	\$ 48,000	\$ -	\$ 240,000	4

Multiple criteria analysis

At times, management may request for specific information. For example, when rewarding employees based on a lucky draw, we need to find out how many employees have names beginning with the letter "R"? Excel can tabulate this calculation very quickly with a built-in function to provide an answer of 4 as below.

How many employees have names beginning with the letter "R"?	4
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Moving on, management may request further information with 2 criterias i.e. How many employees in the organization have salaries greater than \$50,000 **AND** taken more than 5 Sick Days? Again, another built-in function of Excel calculates this to be 6 as displayed below.

How many employees have salaries greater than \$50,000 and taken more than 5 Sick Days?	6
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To perform a total sum of multiple conditions, yet another function of Excel can be used for the following request i.e. What is the total salary of employees beginning with the letter "R" **AND** Overtime rates of less than \$500? A value of \$29,000 is detected from the database as depicted below.

What is the total salary of employees beginning with the letter "R" and Overtime rates of less than \$500?	\$ 29,000
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Sampling data with Histogram

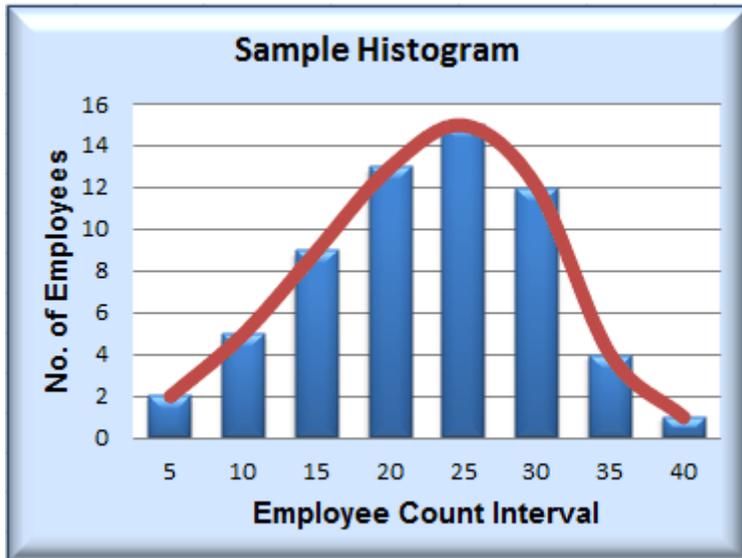
Let us look at a manufacturing scenario now with 61 Divisions and different Number of Employees per Division.

Division	No of Employees
Division 1	6
Division 2	11
Division 3	12
Division 4	2
Division 5	16
Division 6	18
Division 7	22
Division 8	23
Division 9	13
Division 10	12
Division 11	25
Division 12	6
Division 13	24

A built-in feature of Excel called Histogram can be invoked as an Add-on to perform analysis as below. The Frequency header indicates the total Divisions with the Number of Employees based on the Interval. For example, there are 2 Divisions with 0 to 5 Employees; and 5 Divisions with Total number of 6 to 10 Employees; etc.

Interval	Upper Limit of	Frequency
0-5	5	2
6-10	10	5
11-15	15	9
16-20	20	13
21-25	25	15
26-30	30	12
31-35	35	4
36-40	40	1

For ease of understanding and quick analysis, the data above can be plotted as a Histogram, as in the illustration below.



When one has the expertise in exploiting Microsoft Excel with its built-in functions, deep and meaningful information can be gathered quickly and efficiently. This is where the author showcases various examples in his many training sessions, all using Microsoft Excel as a tool.

The examples illustrated above is a snapshot of what the author covers in some of his 2-days training sessions. Having been a corporate trainer for the last 14 years, Palani specializes in training participants how best to perform data analysis from company's raw data and concluding from the information gathered by harnessing Excel's built-in functions and features. A HRDF certified trainer and author of 51 books to-date on various software applications, Palani is passionate on what Excel can do, and how best to present data in different formats. More information is covered in his website www.avimursolutions.com. He can be reached at palani@avimursolutions.com

