

# **Employee Attrition in Engineering Firms: Case Study of DCIPS Pvt. Ltd, India**

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## **Abstract**

Retention of talented workers is not primarily driven by fair and equitable compensation at par with the industry trend. The purpose of the study is to investigate and analyze the causal factors influencing attrition and how engineering firms can retain their operational employees. This research has studied the retention pattern of managerial personnel engaged in operational activities in an engineering firm in India named DCIPS. The methodology used to unearth the causal factors determining the attrition propensity was a study of exit documents of engineering managers leaving the organization over a 10-year period (1999 - 2008). The results revealed that attrition is due to the lack of growth and a career advancement opportunity. Length of association with the firm has been related to attrition pattern. Such a case study of an engineering firm may be extended for other engineering firms, which goes to establish the need for career growth and planning in ensuring employee satisfaction and hence bring about satisfactory retention levels.

## **Keywords**

Employee attrition, career plateau, tenure of service.

## **1. Introduction**

Tough economic times is appropriate to focus on turnover and retention studies because at this time, the turnover rate of almost every firm decreases, as employees increase their emphasis on job security. However, this might be an ideal time to re-examine ones processes, metrics, and goals related to turnover and retention. The “seeds” or initial causes of turnover, arising out of the frustration related to budget cutting, hiring freezes, layoffs, and lack of development funds and opportunities, are more likely to be sown at such times. Mobley et al. (1979) [1] suggested two factors that are related to the employee's progression through successive stages of withdrawal. One factor reflects the employee's evaluation of the organization's future expected value and the tension associated with the employee's present work conditions. A consistent line of research evidence has been developed which indicates that voluntary job terminations can be explained from the employee's intentions to leave an organization (Bluedorn, 1982) [2]. March and Simon (1958) [3] suggested that this intentional decision involves a subjective evaluation of the employee's job aspirations in comparison with the expected value of job opportunities in the present organization and the availability of attractive opportunities in other organizations or alternative careers. Mobley (1977) [4] and Mobley, Horner, and Hollingsworth (1978) [5] have suggested that the termination decision process can be described as a sequence of cognitive stages starting with an initial dissatisfaction with the present job.

This study is based on sample of 92 employees of an engineering firm DCIPS Private Limited, relating turnover behaviour with age of employees and promotion prospects in the organization measured through the career graph of each of these 92 employees. In this paper we have tried to explain job turnover in relation with employee's job aspirations and value of job opportunities in the present organization and availabilities of attractive alternative in other organization or alternative career. The purpose of this paper is to test a model of the turnover process that casually links career growth opportunity of leaving employees and age. In this study both voluntary and non-voluntary turnover have been clubbed.

## 2. Objective

The objective of our research is to explain the transition from retention to termination states of behavior and to obtain a better understanding of the process by which the transition occurs. This study examines one such mechanism called employee turnover. Analyzing the sample of 92 left out employees who left at different levels in the organizational hierarchy from an engineering company named DCIPS Private Ltd. We are trying to infer a pattern in career growth opportunities within the organization that may have influenced the labour turnover of this firm. This may lead to inferences on ways to prevent employee turnover to certain extent by adopting measures for retention of employees. We can use this model for other organizations also.

## 3. Methodology

The period under study is a 10 years life span (April 1998 – March 2008), which has been considered to study the career growth of 92 full time managerial employees of a reputed engineering firm, DCIPS Private Limited, India. For our research purpose we have selected only the technical people out of total employee strength of DCIPS. The research is mainly based on exit documents. In our study for the sake of convenience of analyzing the causal effects on the rate of employee turnover at different levels of DCIPS, we have, divided all the technical employees in 4 levels viz. Level 1(Top Management); Level 2(Middle Management); Level 3(Officers and Draughtsman) and Level 4(Staff and Supervisors). Considering the qualifications of the 92 employees, we have divided those into 5 categories like, Q1 (Above ME or Equivalence); Q2(ME or Equivalence); Q3(BE); Q4(B.TECH); Q5(LME,DE,LEE,DCE); Q6(ITI,BSC). While we were analyzing the reasons for which they leave DCIPS, we found that 5 major areas

## 4. Inferences

In case of year wise analysis we have observed that there were no records of employees leaving the organization in the year 1999. In the year 2000 turnover percent is quite negligible. For the year 2001 and 2002, though the overall percentage of turnover is low, we may observe that the figures are highest for level 2 (middle management). But during the year 2006 and 2007 it is quite high (around 11 to 12 per cent). Turnover rate for 2002, 2003 and 2004 is more or less same i.e. 1 per cent and turnover rate for the year 2005 is about 8 per cent. So we can say that for these 3 years there were stability in respect of employee retention issue followed by a sudden hike of turnover rate in the year 2005, which continues to the following years i.e. in 2006, 2007 and 2008. So initially turnover rate was not high but during the year 2006- 2007 we found noticeable turnover hike. This could be explained by the economic growth in India that slumped post 2008 following the world economic melts down (Fig.1).

Table 1: Percentage of turnover with respect to 4 levels for 1999 to 2008

Year	Aggregate Percentage of turnover	Percentage of turnover L 1	Percentage of turnover L 2	Percentage of turnover L 3	Percentage of turnover L 4
31.3.1999	0	0	0	0	0
31.3.2000	0.72	0	1.79	2.78	0
31.3.2001	3.91	3.57	11.11	6.90	0
31.3.2002	1.39	0	5.88	0	0
31.3.2003	0.91	6.90	0	0	0
31.3.2004	0.94	0	3.64	0	0
31.3.2005	8.29	7.14	14.81	12.73	1.25
31.3.2006	11.17	10	23.26	10.67	2.04
31.3.2007	11.70	6.25	16.22	7.46	11.54
31.3.2008	8.62	16.67	5	9.86	5.13

Note: L1: Level 1 (Top Management), L2: Level 2 (Middle Management), L3: Level 3 (Officers and Draughtsman), L4: Level 4 (Staff and Supervisor)

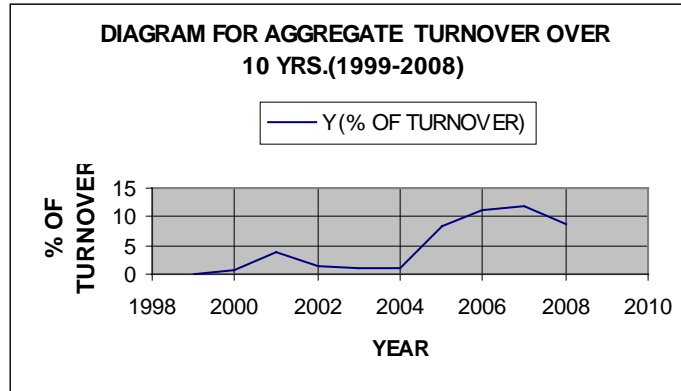


Figure 1: Line Diagram Showing Percentage Of Aggregate Turnover (1999-2008)

The data on of job turnover is presented and tested longitudinally using Least Square Method. We calculated their estimated values of percentage of turnover for the overall firm and the 4 different levels for 2010 and 2011.

**Table 2: Estimated percentage of turnover using Least Square Method**

	TOTAL	L1	L2	L3	L4
EST_V 2010	13.09	14.54	17.53	12.06	7.59
EST_V 2011	14.37	16	18.97	13.14	8.45

Note: EST\_V 2010: estimated value for the year 2010, EST\_V 2011: estimated value for the year 2011.

The economic turn of events is probably an indicator of the opportunities in the industrial sectors, leading to turnover percent revolving around 15-18 for L1 to L3, the only difference being L 4. This leads to analysis of the reason behind employees leaving the organization.

Table 3: Number of employees leaving the organization vis-à-vis their reason for leaving

Reason	Level at which Employee Left				Total
	L1	L2	L3	L4	
R1	6	18	7	10	41
R2	0	6	1	1	8
R3	0	1	1	5	7
R4	1	1	4	0	6
R5	6	16	8	0	30
<b>Total</b>	13	42	21	16	92

The Table 3 shows out of 92 employees those who have left DCIPS, 13 employees left from L1 i.e. Top Managerial level. Out of these 13 L1 employees, 6 (46.15per cent) employees left as they got better opportunity elsewhere and another 6 (46.15per cent) employees have left to join another private company in similar business line headed by ex-director of DCIPS as they have already reached their career plateau. No one has left from L1 for pursuing higher studies or no one has faced any adjustment problem with the work level of DCIPS. Out of 13 L1 employees only one employee has left for closing down of one particular department i.e. chemical department.

From the table we can see that 42 employees have left from L2 (45.65per cent), 21 from L3 (22.83 per cent) and 16 from L4 (17.39 per cent). Most of the L2 employees (95.24per cent) left because of better opportunity, higher studies and poached. This probably indicates that L1 is a very small triangle and employees from L2 found no motivation in continuing with DCIPS. So we can say that L2 employees were quite ambitious and for their personal development they left DCIPS though they were satisfied with the work culture of this company. 38.09 per cent employees left from L2, 38.10 per cent from L3 as they joined other company, which is in similar business line and

offered almost double salary. This also substantiates our view that L2 employees were not satisfied with the career plateau they had reached.

Table 4: Distribution of employees according to level wise promotion

Level at the time of leaving	Level at the time of joining				Total
	L1	L2	L3	L4	
<b>L1</b>	2	2	9	0	13
<b>L2</b>	0	11	26	5	42
<b>L3</b>	0	0	5	16	21
<b>L4</b>	0	0	0	16	16
<b>Total</b>	2	13	40	37	92

In Table 4 we found that 41.30 per cent of people left the organization in search of growth opportunities but what was the limitation in DCIPS in terms of growth prospects, this is measured by tracing the career graph of each of 92 employees as is mentioned in the section of methodology. The organizational hierarchical structure is categorized under 4 levels, L1, L2, L3 and L4. To study the promotion prospects, we have, considered the level at which an employee left vis-à-vis the level at which he joined. 37 employees those who have joined in L4 out of them only 16 (43.24per cent) have left the job at the same level. Total 40 employees joined this company at level 3 but out of them 26 (65per cent) employees promoted to level 2 and 9 (22.50per cent) to level 1 at the time of leaving DCIPS. So we can say that in DCIPS, there is intra organizational growth prospects as employees are being promoted time to time to higher positions still compare to other organizations there is little scope for personal developments. Those who have joined at level 2 for them we observed that negligible per cent (15.38per cent) have got promoted to level 1 and altogether 38 level 2 employees (41.30per cent) out of total 92 employees have left the company may be because of the fact that there was little scope for further hike in their career ladder.

Table 5: Distribution of employees according to level wise promotion

Reasons for leaving	Qualification at the time of leaving						Total
	Q1	Q2	Q3	Q4	Q5	Q6	
<b>R1</b>	0	5	19	0	16	1	41
<b>R2</b>	0	2	3	1	2	0	8
<b>R3</b>	0	0	2	1	3	1	7
<b>R4</b>	0	2	0	0	2	2	6
<b>R5</b>	0	6	12	1	7	4	30
<b>Total</b>	0	15	36	3	30	8	92

Note: R1= (Better opportunity), R2 (Higher studies), R3 (Adjustment problem), R4 (Section closed down), R5 (Poached). Q1 (Above ME or Equivalence), Q2 (ME or Equivalence), Q3 (BE), Q4 (B.TECH), Q5 (LME, DE, LEE, DCE), Q6 (ITI, BSC)

From table 5 we can say that this organization did not give opportunity for promotion to those employees who did not have graduate degree in engineering mostly in case of L4.

Table 6: Distribution of employees according to level wise qualification

Qualification	Level 1		Level 2		Level 3		Level 4		Total
	J	L	J	L	J	L	J	L	
<b>ITI (Q6)</b>	1	1	0	1	2	5	7	1	18
<b>LME (Q5)</b>	0	0	0	4	1	13	28	13	59
<b>B.TECH(Q4)</b>	0	0	1	2	1	0	0	1	5
<b>B.E (Q3)</b>	1	12	11	26	34	0	2	1	87
<b>M.E (Q2)</b>	0	0	1	9	1	2	0	0	13
<b>Above ME (Q1)</b>	0	0	0	0	0	0	0	0	0

Note: J: Joining, L: Leaving

From table 6 we have derived that most L2 people have master degree in engineering and surprisingly those who left from DCIPS in L1 they do not possess master degree rather very few L3 people hold master degree. This probably explains that the firm gives weightage to the qualification of the employee while considering his promotion prospects. We also explore the idea whether age had any bearing on the employees leaving the organization. A cut off of 10 years was taken to study this pattern. From the data we found that 14 employees (15.22 per cent) have only 1-year experience in DCIPS.

Table 7: Distribution of employees according to their experience at DCIPS and reasons behind leaving the firm

	Left <=10	Left >10	Total
<b>Reason</b>			
<b>R1</b>	30	11	41
<b>R2</b>	6	2	8
<b>R3</b>	6	1	7
<b>R4</b>	4	2	6
<b>R5</b>	12	18	30
<b>Total</b>	58	34	92

We have divided total technical employees in 2 categories according to their experience in DCIPS, one, the employees who have less than or equal to 10 years' experience and the others who have greater than 10 years' experience. We have observed that 58 employees (63.04 per cent) have left after serving DCIPS for <=10 years and 34 employees (36.96 per cent) left after serving DCIPS for more than 10 years. Out of these 58 employees those who served DCIPS for <=10 yrs., 51.72 per cent and out of 34 employees (those who served DCIPS for more than 10 years) 32.35 per cent employees left as they got better opportunity elsewhere. 20.69 per cent and 52.94 per cent left as they joined another private company which offered them almost double the salary. That means those employees who have worked in DCIPS for more than 10 years are quite satisfied with the working condition of the company as they were not willing to choose other alternatives. And rest left for other reasons but in those cases percentage is negligible. From this we can infer that the ex-director, who formed a new private company in similar business line, actually hired more experienced people at the formative stage of his company.

We conducted a t test with  $H_0$  = the average age of employees leaving the organization with 10 years or less experience is lower than average of employees leaving after 10 years experience. Here,  $\mu_1$  = average age of employees leaving the organizations with 10 years of employees' experience and  $\mu_0$  = average age of employees leaving the organization after 10 years experience. Considering  $\mu_1 < \mu_0$ , a t test is conducted to get a calculated value of  $t = 1.14$ . Considering the table value  $H_0$  is rejected. This statistically substantiates observation that seniors (implicitly L2) employees have higher probability of having the experience after 10 years of none with experience at DCIPS.

Finally we proceed with a multiple regression model in which the years of experience are the dependent variable. We tried to calculate whether the number of years of experience at DCIPS has any relation with the independent variables like age, level at which they joined and the level at which they left the organization, their qualifications at the time of joining and their qualifications at the time of leaving. To establish the model the differentials in the level of joining and leaving; qualifications at the time of joining and leaving have been considered as independent variable. The model is based on the equation  $y = f(x_1, x_2, x_3)$ ; Where  $y$  = age at which an employee left the organization;  $x_1$  = change in level;  $x_2$  = change in qualifications;  $x_3$  = age of employee.

Table 8: Output of Regression Model

Model	Unstandardised coefficients		Standardized coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-10.364	2.171		-4.773	0.000
CHL (change in level)	3.668	0.736	0.371	4.985	0.000
CHQ (change in qualification)	1.612	0.876	0.127	1.840	0.069
AGEL (age at leaving)	0.413	0.058	0.527	7.090	0.000

The regression equation had an adjusted R square of 0.567 to indicate a moderately fair robustness of the model. Change in level and age had expected signs and was significant variables at 95 per cent level of confidence. This indicates that the age has a positive relation with the number of years that the employee works for DCIPS, consolidating the earlier understanding that older employees had longer tenure. The change in levels also was a significant variable, thus indicating that the promotion prospects were an encouraging factor of work at DCIPS except probably Level 2, as proved earlier. Change in qualification was considered insignificant, probably explaining that any change in qualification did not relate to his stay in terms of years with DCIPS.

## **5. Conclusions**

DCIPD is a wholly owned subsidiary of the world renowned consulting engineering firm Development Consultants Private Limited (DCIPS), a premier organization of its kind in India, renders turnkey project execution services. We have observed that a great percentage of L2 people left DCIPS as they reach their career plateau. On the other hand very few L4 employees who left DCIPS could reach to higher level at the time of leaving as their qualification was diploma only thereby we can conclude that in DCIPS to get promotion graduate degree in engineering or master degree is required. Most L2 employees possess master degree in engineering whereas no L1 employees have master degree. Since the L2 employees are more ambitious so for better opportunity they left DCIPS. Otherwise, no incidences of any conflict or bitterness have been expressed between line and HR managers.

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## **References**

1. Mobley, W. H., Griffeth, R. W., Hand, H. H., and Meglino, B. M., 1979, Review and conceptual analysis of the employee turnover process. *Psychological Bulletin*, vol. 86, pp. 493-522.
2. Bluedorn, A. C., 1982, The theories of turnover: Causes, effects and meaning. In S. Bacharach (Ed.), *Perspectives in organizational sociology: Theory and research*. Greenwich, Conn.: JAI Press, pp. 75-127.
3. March, J. G., and Simon, H. A., 1958 *Organizations*. New York: John Wiley.
4. Mobley, W. H., 1977, Intermediate linkages in the relationship between job satisfaction and employee turnover. *Journal of Applied Psychology*, vol. 62, pp. 237-240.
5. Mobley, W. H., Horner, S.O., and Hollingsworth, A. T., 1978, An evaluation of precursors of hospital employee turnover. *Journal of Applied Psychology*, vol. 63, pp. 408-414.