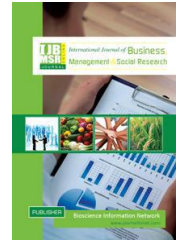




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## Measurement of knowledge loss in an organization: a case study

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### ABSTRACT

*In the competitive world, an organization can sustain in its business if its human resources are well maintained and utilized. Workforces are trained and made them fit to work in the organization. Their knowledge is used to get the desired result for the benefit of the organization. So, the knowledge gained by the workforce during their stay in the organization has got equal importance as compared to the profit the organization looking for. The knowledge that has been gained during the tenure of an employee in the organization is lost from the day he/she separates from the organization. The purpose of this paper is to establish that knowledge loss can be calculated in quantitative terms apart from qualitative statements and these quantitative terms of knowledge loss may help organizations for strategic decision on retention of knowledge through better understanding and visualization of loss. The study made in one of the units of a public sector organization in India having nine operative units across the country. This is an exploratory nature of case study, conducted open-ended interview. Primary data were collected from HR department and face to face interview with senior managers. Analysis done based on data collected and measurement of knowledge loss calculated. This paper established that knowledge loss can be calculated in quantitative terms using some formula based on certain data with respect to the employee in the organization in respective position.*

**Key Words:** Knowledge management, Knowledge worth, Expertise, Expert level, Performance Appraisal and Strategies

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## I. Introduction

In a business organization, human resource is one of the prime and important elements to grow and sustain. Accordingly human resources are engaged in the organization based on job requirements. These human resources will continue to give services to the organization till the date of separation by way of transfer, retirement or resign and other attrition means. During the period of attachment in the organization; employee acquires knowledge and become expertise by virtue of experience, training,

action or other means. These knowledge become assets for the organization till he/she is in the organization and it also becomes his/her individual assets. The asset of human resource is valuable till he/she is in the organization. However, if the human resource leaves the organization, the asset of knowledge goes with him and hence it is a knowledge loss for the organization.

Nonaka (1994) proposes two dimensions of knowledge: explicit and tacit. Tacit knowledge is embedded in action, experience and involvement in a specific context (Alavi and Leidner, 2001); it is non-verbalized or even non verbalizable, intuitive and unarticulated (Hedlund, 1994). It is comprised of cognitive and technical elements (Nonaka, 1994). While the cognitive element refers to the individual's mental maps, beliefs, paradigms and viewpoints, the technical element refers to know-how, crafts and skills that apply to a specific context (Alavi and Leidner, 2001). Tacit knowledge is the knowledge that people carry in their memory. It is much less concrete than explicit knowledge. It is more of an unspoken understanding about something, knowledge that is more difficult to write down in a document or a database. Conversely, explicit knowledge is articulated, codified and can be communicated through language (Nonaka, 1994). Explicit knowledge can be captured in 'non-human' organizational knowledge storage bins (Hedlund, 1994) by means of writing, computer programs, patents and even drawings. Tacit knowledge is difficult to manage and can only be transferred through highly interactive conversations (Leonard and Sensiper, 1998). Tacit knowledge is most critical to organizations because it is based on the knowledge and skills that accumulate over time through the experiences of individual employees (King, Fowler and Zeithamel, 2001). It is not possible to transform all tacit knowledge, but at least some knowledge can be retained. Droege and Hoobler (2003) argue that the greater the value of tacit knowledge in creating new knowledge and processes and maintaining ongoing processes and operations, the greater the loss will be to the organization when employees leave. In organizations, individuals and groups use knowledge to solve problems, make decisions and perform actions. Knowledge is applied in all these situations (Alavi and Tiwana, 2003).

In regard to the above, we see the two dimensions, Knowledge and Expertise. According to Silke Bender and Alan Fish knowledge and expertise are, Knowledge originates in the head of an individual and builds on information that is transformed and enriched by personal experience, beliefs and values with decision and action-relevant meaning. It is information interpreted by the individual and applied to the purpose for which it is needed. The knowledge formed by an individual will differ from another person receiving the same information. Knowledge is the mental state of ideas, facts, concepts, data and techniques, recorded in an individual's memory. Expertise is specialized, deep knowledge and understanding in a certain field, which is far above average. Any individual with expertise is able to create uniquely new knowledge and solutions in his/her field of expertise. In this sense, expertise is gained through experience, training and education and it is built up from scratch over a long period of time by an individual and importantly remains with that person. Expertise is far deeper knowledge in a certain field that has been enriched by long-time experience, education and training, and it must be built up from scratch by the individual (Starbuck, 1992; Sveiby, 1997).

As every individual builds her or his own knowledge by transforming and enriching information (Fahey and Prusak, 1998), knowledge cannot easily be transferred to another person. Knowledgeable employees can teach or train employees in a certain field by passing on their knowledge in lectures, meetings, presentations, on-the-job-training, by demonstrating how to do things and by influencing them in their knowledge-building process by giving additional information or useful advice of how to approach a certain task. The "experts" themselves have to be transferred as knowledge resides with the individual who can then apply their expertise wherever it is needed. An "expert" can train and teach other people. However, that does not make the recipient knowledgeable or an expert. As argued, expertise is built up from scratch by an individual over a long period of time and remains with that person. Unlike information, expertise cannot be transferred to other individuals (Sveiby, 1997).

There has been growing concern in the business and organizational sector that organizational knowledge can be lost through the exit of employees. According to DeLong and Davenport (2003), unprecedented knowledge retention problems are created in many industries through changing workforce demographics such as an aging workforce, more competitive recruiting and faster turnover in younger people. They refer to the problem as "operational and institutional amnesia imperil". The most significant business and societal trend for the next decades is considered by many to be the rapidly

aging workforce (Foster, 2005; Nicholson, 2008), resulting in loss of job-specific and industry-related knowledge through the retirements of a large portion of the current workforce (Juliano, 2004; Gotthart and Haghi, 2009). To this may be added the effects of a world recession leading to downsizing in many organizations and thus knowledge loss. Brown and Galli-Debicella (2009) contend that fewer young workers are entering the skilled trades, and many companies only realize the importance of tacit knowledge in their employees after they have left the company. Since organizations cannot afford to lose expert knowledge, they need to find ways of retaining the knowledge in the minds of people inside the organization before they leave.

For competitive advantage, knowledge is one of the most important resources (e.g. Hitt et al., 2001). Accordingly, for a firm sustainable competitive advantage is based on exploiting, exploring and retaining a firm's knowledge (e.g Grant, 1996). The organizational knowledge retained through employees also called as human capital, which is most valuable and important source of competitive advantage (e.g Grant, 1996). In literature, exploitation and exploration have been given extensive attention (e.g. Raisch et al., 2009), but knowledge retention has not been given due importance (Argote et al., 2003; Fisher and White, 2000; Marsh and Stock, 2006). In organization knowledge retention is one of the core element of its memory concept and enabling the organization to embed the knowledge in the organization (Argote et al., 2003). These knowledge is retained in an organization in various ways 'human' and 'non human' repositories at various organizational levels (Walsh and Ungson, 1991). This retained knowledge is an integral part of the organizational learning process (Olivera, 2000). Knowledge loss through exit of employees has become a critical factor that could make organization vulnerable and it becomes a growing concern in the business.

Organizational knowledge loss can be defined as the intentional or unintentional evaporation of knowledge that accumulates from learning and from individual and collective actions (Perrott, 2007). In this paper, we study unintentional knowledge loss only. Knowledge management (KM) has become increasingly important as organizations realize that effective use of knowledge assets and resources provides them with the ability to innovate and respond to fast changing customer expectations, and help support a range of vital operational and innovative activities (Sandhwalia and Dalcher, 2011). Regardless of economic conditions, employee turnover happens. The financial impact of workforce mobility documented by "The Society for Human Resource Management" found that direct replacement cost can reach as high as 50% to 60% of an employee's annual salary. The total cost of replacement, including training and the loss of productivity, can range from 90% to 200% of an employee's annual salary. The carriers of knowledge, such as managers and professionals, work in rapidly evolving scientific and technical fields that bring about tremendous experiential knowledge. Only some of this knowledge is shared and documented (DeLong, 2004). The departure of employees leaves huge gaps in valuable knowledge (Mayo, 2003). These knowledge gaps are difficult to identify until unexpected quality problems, mistakes, costly disruptions in performance or operations, loss of competitive advantage and even tragic accidents occur (DeLong, 2004). It is estimated that between 50 and 90 percent of the corporate know-how resides in the minds of people (Duhon, 1998; Campos and Sa'nchez, 2003) and in their experience of actions (the way they do things).

The organization under study is facing an acute shortage of experienced employee day by day as their knowledge going away with them on their attrition/retirement. In certain cases expert personnel are to be called even after their retirement to take decision and revival of system. So the organization is facing problem of non availability of the experienced employee when their requirements sought for due to pre occupation or moving to different locations. So organization are facing problem in running the system due to knowledge loss in the organization because of attrition/retirement and there is no systematic retention strategies. If knowledge loss is the problem, then knowledge retention could be regarded as the solution (DeLong, 2004) to combating knowledge loss by keeping possession of, continuing to have, practicing and recognizing knowledge that could be lost to the organization. In light of this global workforce changes many organizations are faced with dilemma- how to maintain the right set of people at right time in order to meet a company's long term goal and vision.

The literatures are mostly putting forward qualitative proposition or statements on knowledge loss due to transfer, retirements or other attritions etc. There is hardly any mathematical model or methodological process to find out quantifying knowledge loss in an organization. Such models/

methods may be useful for the organization to find out the tentative idea or better assess about the knowledge loss and helps to go deeper thought for retention strategies. It is essential for the organization to find ways to know how much knowledge is lost, so that the organization can take prior action to acquire and re-use knowledge for right people at right time. This study is made with an attempt to find out how knowledge loss can be calculated in quantitative terms for better comparison to help organization in the form of human capital management. The objective of this study is to measure knowledge loss in an organization which in turn easy way to find out deficiencies and taking remedial action KR strategies of human capital management.

## II. Research Methodology

To calculate knowledge loss one method as a crude measure is taken from [Liebowitz \(2009\)](#).

$$\sum((\text{Number of people leaving in a given year})(\text{measurement of knowledge worth})(\text{loaded salary}) - \sum((\text{Number of replacements for those people in a given year})(\text{measurement of knowledge worth})(\text{loaded salary}))$$

We have generalized the crude method of [Liebowitz \(2009\)](#) considering all the employee of the organization / section / unit in the following manner:

$$KL = (\sum GKJ - \sum DKL)$$

Where,

KL = Knowledge Loss

EKA = Existing Knowledge Available

DKL = Drain Knowledge on leaving

GKJ = Gain Knowledge on joining

If KL is (-) then Knowledge Loss, If KL is (+) then Knowledge Gain

To calculate the percentage of loss/gain of knowledge is as follows:

$$\% \text{ of knowledge loss/gain} = (KL/EKA)$$

The “Knowledge” of an individual employee is calculated considering two factors – “Expert level” and “Basic Salary”.

The product of the two factors “Expert level” and “Basic Salary” are considered as an employee’s “Knowledge Worth” with respect to his position in the organization.

i.e. Knowledge Worth = Expert Level (EL) x Basic Salary (BS)

To proceed with the study we used stratified sampling plan, we formed strata with homogenous elements based on personal judgment with common relationship of the population considered. To select sample from each stratum, populations are selected based on systematic sampling to be more appropriate considering a certain situation. To select sample size, we used method of proportional allocation ([Kothari, 2011](#)), under which the sizes of the samples from different strata are kept proportional to the size of the strata. That is if  $P_i$  represents the proportion of the population included in stratum  $i$  and  $n$  represents the total sample size, the number of elements selected from stratum  $i$  is  $n_i$ . Let’s say we want sample of size  $S$ , to be drawn from population size  $N$  which is divided into three strata  $N_1$ ,  $N_2$  &  $N_3$ , Using the proportional allocation the sample sizes of three different strata were:

$$\text{For strata } n_1 = S \times (N_1/(N_1+N_2+N_3))$$

$$\text{For strata } n_2 = S \times (N_2/(N_1+N_2+N_3))$$

$$\text{Similarity for } n_3 = S \times (N_3/(N_1+N_2+N_3))$$

This is most convenient as there is no difference in within-stratum variance, population are of same characteristics.

The organization, under study is an Indian public sector organization and has got nine major units of similar nature of operation across the country. For convenient of study and to minimize the cost of study we considered one of the units where total 23 departments exist and out of which 3 departments (DP\_P, DP\_U & DP\_Q) have core involvement in production & operation and these 3 departments have 20 sub-sections with total manpower of 508 during the period of study, which is considered as sample frame for the study. We used stratified sampling plan, taking inputs from expert and head of the 3 departments

of the organization and selected 5 most critical sub sections of 3 departments out of 20 sections involving in production & operation where there are total 238 ( DP\_P : 130 , DP\_U : 53 & DP\_Q : 55) working force. Selections of these critical sub-sections are based on operation complexity and production priority, taking inputs from Heads of these operation departments of the organization. As our study focused on core involvement in production & operation, and to be more accurate in sampling, we considered all employees working in 5 most critical sub-section of all the three departments as sample for the study , where N1 for DP\_P :130 , N2 for DP\_U : 53 & N3 for DP\_Q :55 and total population  $N(N1+N2+N3) = 238$  and Sample S : 238 and the sample size (n) will be 130 , 53 & 55 respectively as given in [table 01](#) using proportional allocation.

**Table 01. Sampling size of three departments**

Core Department	Employee (N1/N2/N3)	Total Employee (N)	Total sample (S)	Sample size (n) [S(N1/N)]
DP_P	130	238	238	=238(130/238) = 130
DP_U	53			=238(53/238) =53
DP_Q	55			=238(55/238) =55

**Table 02. shows the number of workforce i.e sample, exist in each sub section and in departments under study during the period of this project work**

Core Department	Sub-section	No of Employee	Total
DP_P	DP_P1	24	130
	DP_P2	16	
	DP_P3	49	
	DP_P4	23	
	DP_P5	18	
DP_U	DP_U1	19	53
	DP_U2	13	
	DP_U3	09	
	DP_U4	05	
	DP_U5	07	
DP_Q	DP_Q1	10	55
	DP_Q2	07	
	DP_Q3	03	
	DP_Q4	33	
	DP_Q5	02	
Total			238

**Table 03. Elements for expert level identification based on common area of performance appraisal system**

Area/ traits	Elements
Performance	Knowledge of work Interest in work Accuracy of work
Competencies	Judgement Willingness to accept responsibility Ability to develop & train others Resource fulness
Potential	Initiatives Quality of work Dependability

After selecting the sample size, we need to know the “Expert level” of each sample employee. This is considered based on the rating given by their Head of Department (HOD on 10 common elements which are taken from performance appraisal system of the organization. [Table 03](#) shows the three main traits of performance appraisal systems - namely Performance, Competency and Potential under which 10 common elements selected, based on inputs from departmental heads during the interview process. Departmental heads, who are having the authority to rate the employee are asked to rate (0-5 scale)

based on their Performance, Competencies and Potential on the above mentioned 10 elements. Based on their rating average score 0 (min) 10 (max) taken as “Expert Level” of the employee.

To find out Expert Level in range of 0-10 we followed the following calculation:

Total Rating named as Total Marks (TM) for 10 elements	: 50 (max)
Total Score (TS) based on rating by HOD	: 0 (Min) 50 (Max)

To get the Average score for 10 elements to find out Expert Level (0-10):

$$\text{Score} = (\text{TS}/\text{TM}) \times 10$$

The score is considered as “Expert Level” of the employee. If the Score more than 0.5 is rounded off as 1. The third element to calculate KL, we need to know the Basic Salary paid by the organization based on employees’ position. The data of basic salary of individual employee under study were collected from Finance department of the organization.

### III. Results and Discussion

To meet the objective of the study, the following main focus groups are considered to find out the knowledge loss in the organization.

- a. Employee Existing
- b. Employee Leaving in the specified period
- c. Employee Joining in the specified period

The formula used to find out knowledge loss in the organization / unit / section :

$$\text{KL} = [(\sum \text{GKJ}) - \sum \text{DKL}]$$

Where,

KL = Knowledge Loss

EKA = Existing Knowledge Available

DKL = Drain Knowledge on leaving

GKJ = Gain Knowledge on joining

If KL is (-) then Knowledge Loss, If KL is (+) then Knowledge Gain

To calculate the percentage of loss/gain of knowledge is as follows:

$$\% \text{ of knowledge loss/gain} = (\text{KL}/\text{EKA})$$

The “Knowledge” of an individual employee is calculated considering two factors –“Expert level” and “Basic Salary”. The product of the two factors “Expert level” and “Basic Salary” is the “Knowledge Worth” of the employee with respect to his position in the organization.

$$\text{i.e. Knowledge Worth} = \text{Expert Level (EL)} \times \text{Basic Salary (BS)}$$

The “Expert level” of employee is calculated based on rating by given by Head of the department on 10 common elements considered from performance appraisal system of the organization. The range for the rating in each element is 0 (min) to 5 (max), and an employee rated in all 10 elements on their Performance, Competencies and Potential. The average score 0(min) and 10(max) taken as “Expert Level” of the employee. Table 3 shows calculation of “Expert Level” of Employee No. 10001 based on rating given by his Head of department . The Total Rating named as Total Marks (TM) for 10 elements: 50 (max). The Total Score (TS) obtained by the employee based on rating by HOD on 10 elements: 33

The Average score for 10 elements to find out Expert Level (0-10):

$$\begin{aligned} \text{Score} &= (\text{TS}/\text{TM}) \times 10 \\ &= (33/50) \times 10 = 6.6 \text{ rounded off to } 7. \text{ So, the Expert Level of the employee is } 7. \end{aligned}$$

Table 04		Expert Level identification																
		PERFORMANCE			COMPETENCY				POTENTIAL			SCORE						
Emp No	Name	DOJ	Grade	Designation	Knowledge of work	Interest in Work	Accuracy of Work	Judgment	Willingness to accept responsibility	Ability to develop & train others	Resourcefulness	Initiatives	Quality of Work	Dependability	Total Score (TS)	Total Marks TM	Score out of 10 = (TS/TM)X10	Expert Level (rounded off)
10001	A	xx/xx/xxxx	A1	Engg. Asstt	3	3	3	3	4	3	4	4	3	3	33	50	6.6	7

**Table 05. Statistics of the department “DP\_Q”**

Section	Existing no of employee	No of employee retiring / leaving dept	No of employee joining in dept
DP_Q1	07	2	3
DP_Q2	07	0	0
DP_Q3	03	0	0
DP_Q4	31	4	2
DP_Q5	02	1	0

**Table 06. Knowledge Loss (KL) Calculation of DP\_Q1**

Department		DP_Q			
Unit / Section		DP_Q1			
<b>Existing Employee</b>					
Emp No	Name	Designation	Expert Level (EL)	Basic salary (BS)	Knowledge (EL x BS)
1	X1	DESIG 1	7	39660	277620
2	X2	DESIG 2	6	34880	209280
3	X3	DESIG 3	6	50680	304080
4	X4	DESIG 4	10	54500	545000
5	X5	DESIG 5	8	50680	405440
6	X6	DESIG 6	10	54500	545000
7	X7	DESIG 7	9	13810	124290
<b>Existing Knowledge Available (EKA)</b>					2410710
<b>Employee Leaving</b>					
Emp No	Name	Designation	Expert Level (EL)	Basic salary (BS)	Knowledge (EL x BS)
1	X1	DESIG 1	7	39660	277620
4	X4	DESIG 4	10	54500	545000
<b>Drain Knowledge On Leaving(DKL)</b>					822620
<b>Employee Joining</b>					
Emp No	Name	Designation	Expert Level (EL)	Basic salary (BS)	Knowledge (EL x BS)
8	X8	DESIG 8	10	54760	547600
9	X9	DESIG 9	3	11900	35700
10	X10	DESIG 10	3	11900	35700
<b>Gain Knowledge On Joining (GKJ)</b>					619000
<b>Knowledge worth EKA: 2410710, DKL: 822620 and GKJ: 619000</b>					

Basic salary is the basic remuneration / salary paid by the organization based on employees' position. Other variables of salary are not considered to avoid complex calculation. The data of basic salary of individual employee under study were collected from finance department of the organization. The data of "Expert Level" and "Basic salary" of individual employee, applied in the formula to determine the knowledge loss. This is explained by applying the formula in one of the sections (DP\_Q1) of the department "DP\_Q" where there are 10 employee in the section out of which 2 employees are retiring and 3 employees joined in the year. Table 05 shows all the 5 sections of the department "DP\_Q", where we can see the no of existing employee, no of retiring/ leaving employee and no of employee joined in the department.

As stated above the "Expert Level" of all the employees of the section "DP\_Q1" identified based on inputs from the HOD of the department "DP\_Q" and their "Basic salary" taken from Finance Section to calculate the knowledge worth. Table 06 shows the list of 10 employees (X1 ... X10) of said section "DP\_Q1" with their Expert Levels, Basic salary and Knowledge.

Employee X1 to X7 having expert levels 7, 6, 6, 10, 8, 10, 9 their basic salary 39660, 34880, 50680, 54500, 50680, 54500, 13810 with respect to their positions and their knowledge worth are 277620, 209280, 304080, 545000, 405440, 545000 & 124290 respectively. Similarly the Expert level, Basic salary and Knowledge worth of X8, X9 & X10 who joined in the section are 10, 3, 3 and 54760, 11900, 11900 and 547600, 35700 & 35700 respectively. All individual knowledge of existing employee, employee leaving and employee joined are summed to get the total existing knowledge, total exit knowledge and total knowledge inputs in the section DP\_Q1.

Results of the above are used to find out Knowledge gain / loss in the section using the formula:

$$KL = (\sum GKJ) - (\sum DKL)$$

$$\text{We get } (619000 - 822620)$$

$$= -203620$$

The total 203620 worth of Knowledge Loss occurred in the section in the given year.

$$\text{Calculating in percentage } = (KL/EKA) = (-203620/241071) \times 100 = -8.45\%$$

The section (DP\_Q1) of department (DP\_Q) experienced 8.45% knowledge loss during the year.

Similarly all 15 sections of 3 department of the organization under study were calculated and are tabulated in the table 07, 08 & 09 as given below:

**Table 07. KL Calculation of department "DP\_Q"**

Sl. No	Section	Existing no of employee	No of employee retiring/leaving dept	No of employee joining in dept	Knowledge loss / gain	% of loss/gain
1	DP_Q1	07	2	3	-203620	-8.45%
2	DP_Q2	07	0	0	0	0
3	DP_Q3	03	0	0	0	0
4	DP_Q4	31	4	2	-174890	-1.69%
5	DP_Q5	02	1	0	-297120	-42.37%
Total in DP_Q		50	7	5	-675630	-3.96%

**Table 08. KL Calculation of department "DP\_U"**

Sl. No	Section	Existing no of employee	No of employee retiring/leaving dept	No of employee joining in dept	Knowledge loss/gain	% of loss/gain
1	DP_U1	16	1	3	249900	+5.89%
2	DP_U2	12	5	1	-1637900	-40.77%
3	DP_U3	09	4	0	-1206040	-50.03%
4	DP_U4	05	3	0	-839160	-67.28%
5	DP_U5	06	0	1	83300	+5.33%
Total in DP_U		48	13	5	-3349900	-24.85%



**Table 07** shows that in the department DP\_Q, sections DP\_Q1 , DP\_Q4 and DP\_Q5 experiencing knowledge worth loss -203620,-174890 & -297120 and 8.45%, 1.69%, 42.37% respectively but in the sections DP\_Q2 and DP\_Q3 there are no knowledge loss / gain as there are no retirement and new recruits . But there are over all knowledge loss -675630 i.e 3.96% loss in the department DP\_Q. **Table 08** shows that in the department DP\_U, sections DP\_U1 and DP\_U5 experiencing knowledge gain with worth 249900 & 83300 and 5.89%, 5.33% respectively where as the sections DP\_U2 , DP\_U3 and DP\_U4 are experiencing knowledge loss -1637900, -1206040 & -839160 and 40.77%, 50.03%, 67.28% respectively. It is seen although there are some gain but the overall knowledge loss in the department DP\_U is -3349900, i.e, 24.85% loss in the year.

**Table 09. KL Calculation of department “DP\_P”**

Sl. No	Section	Existing no of employee	No of employee retiring/leaving dept	No of employee joining in dept	Knowledge loss/gain	% of loss/gain
1	DP_P1	22	3	2	-772360	-10.64%
2	DP_P2	13	0	3	293300	+8.02%
3	DP_P3	42	6	7	-1308220	-10.70%
4	DP_P4	19	4	4	-433000	-7.57%
5	DP_P5	14	0	4	695130	+19.34%
Total in DP_P		110	13	20	-1525150	-4.70%

**Table 09** shows the KL calculation in the department DP\_P. Sections DP\_P2 and DP\_P5 experiencing knowledge gain of worth 293300 & 695130 and in percentage 8.02%, 19.34% respectively but the section DP\_P1, DP\_P3 and DP\_P4 are experiencing knowledge loss of worth -772360, -1308220 & -433000 and in percentage 10.64%, 10.70% & 7.57% respectively. The overall knowledge loss in the department DP\_P is -1525150 i.e 4.70% loss in the year. Considering all the data of employee under study, it is seen that there is overall loss knowledge worth is -5550680 i.e 8.81 % knowledge loss in the organization.

**Table 10. KL Calculation of three core departments of the organization**

	Existing no of employee	No of employee retiring/leaving dept	No of employee joining in dept	Knowledge loss/gain	% of loss/gain
Organization	238	33	30	-5550680	-8.81%

Total knowledge loss 8.81% in the organization

In this study it is seen that in some section there are knowledge gain but most of the section there are knowledge loss.

**Table 11. Comparison of Position on Knowledge Loss**

Section	% of loss / gain	KL Position
DP_Q	-3.96%	III
DP_U	-24.85%	I
DP_P	-4.70%	II

The department “DP\_U” knowledge loss is higher followed by “DP\_P” and “DP\_Q” with 24.85%, 4.70% and 3.96% respectively (**Table 11**). The study shows knowledge loss (KL) in quantitative terms in the organization under study, although there is some recruitment and transferred in. Accordingly the management of the organization can see the impact of attrition and can plan to retain the knowledge and recruitments etc.

#### IV. Conclusion

Knowledge loss in quantitative terms in organization, may be helpful to the organization to quantify the impact and take action to retain the loss through specific knowledge retention strategies. This study reveals that there is evidence of knowledge loss in organization due to attrition of experienced workforce, although these are replenished with new recruits. Therefore, it is imperative that organization find ways to find out knowledge loss in quantitative terms and best leverage to retain that

vital knowledge before the employee leaves the organization and recruits accordingly to meet the objective of the organization.

### Competing Interest

The authors declared no competing interest for this research article.

## V. References

- [1]. Alva, M. and Leidner, D. E. (2001). Review – Knowledge management and knowledge management system: Conceptual functions and research issues. *MIS Quarterly* 25(1), 107-136. <https://doi.org/10.2307/3250961>
- [2]. Alavi, M. and Tiwana, A. (2003). Knowledge management: the information technology dimension. In: Easterby-Smith, M. and Lyles, M.A. (Eds), *The Blackwell Handbook of Organizational Learning and Knowledge Management*, Blackwell, Malden, MA, pp. 104-121.
- [3]. Argote L, McEvily B and Reagans R (2003). Managing knowledge in organizations: An integrative frame-work and review of emerging themes. *Management Science* 49(4), 571–582. <https://doi.org/10.1287/mnsc.49.4.571.14424>
- [4]. Bender, S. and Fish, A (2000). The transfer of knowledge and the retention of expertise: the continuing need for global assignments. *Journal of Knowledge Management* 4(2), 125-137. <https://doi.org/10.1108/13673270010372251>
- [5]. Brown, M.V. and Galli-Debicella, A.L. (2009). Aging workforce: how will companies, workers cope? *Plant Engineer* 36(10), p. 11.
- [6]. Campos, E.B. and Sa´nchez, M.P.S. (2003). Knowledge management in the emerging strategic business process: information complexity and imagination. *Journal of Knowledge Management* 7(2), 5-17. <https://doi.org/10.1108/13673270310477252>
- [7]. David, G. Allen (2008). *Retaining Talent : A Guide to Analyzing and Managing Employee Turnover*. Society for Human Resource Management.
- [8]. DeLong, D. W. and Davenport, T. (2003). Better practices for retaining organizational knowledge: lessons from the leading edge. *Employment Relations Today* 30(3), pp. 51-63. <https://doi.org/10.1002/ert.10098>
- [9]. DeLong, D. W. (2004). *Lost Knowledge : Confronting The Threat of an Aging Workforce*, Oxford University Press , Oxford. <https://doi.org/10.1093/acprof:oso/9780195170979.001.0001>
- [10]. Duhon, B. (1998). It's all in our heads. *Inform*, 12(8).
- [11]. Droege, S.B. and Hoobler, J. M. (2003). Employee turnover and tacit knowledge diffusion: A network perspective. *Journal of Managerial Issues* 15 (1), 50-61.
- [12]. Fahey, L. and Prusak, L. (1998). The eleven deadliest sins of knowledge management, *California Management Review* 40(3), 265-276. <https://doi.org/10.2307/41165954>
- [13]. Fisher, S. R. and White, M. A. (2000). Downsizing in a learning organization: Are there hidden costs? *Academy of Management Review* 25(1), 244–251. <https://doi.org/10.5465/amr.2000.2791613>
- [14]. Foster, L. (2005). Confronting the global brain drain. *Knowledge Management Review*, 8(5), 28-31.
- [15]. Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal*, 17 (Winter Special Issue), 109–122. <https://doi.org/10.1002/smj.4250171110>
- [16]. Gotthart, B. and Haghi, G. (2009). How Hewlett-Packard minimizes knowledge loss. *International Journal of Human Resources Development and Management*, 9 (2/3), p. 305. <https://doi.org/10.1504/IJHRDM.2009.023459>
- [17]. Hedlund, G. (1994) A model of knowledge management and the N-form corporation. *Strategic Management Journal*, 15(S2), 73-90. <https://doi.org/10.1002/smj.4250151006>
- [18]. Hitt, M.A., Bierman, L., Shimizu, K. and Kochhar, R. (2001). Direct and moderating effects of human capital on strategy and performance in professional service firms: A resource-based perspective. *Academy of Management Journal*, 44(1), 13–28.
- [19]. Juliano, J. J. (2004). Gen-X and Gen-Y: teaching them the business”, *Public Utilities Fortnightly*, 142(6), 82-85.
- [20]. Leonrd, D. and Sensiper, S. (1998). The role of tacit knowledge in group innovation. *California Management Review*, 40(3), 112-132. <https://doi.org/10.2307/41165946>
- [21]. Kothari, C. R. (2011). *Research Methodology: Methods and Techniques*.

- [22]. King, A. W., Fowler, S. W., and Zeithaml, C. P. (2001). Managing organizational competencies for competitive advantage : The middle management edge. *Academy of Management Executive*, 15(2), 95-106.
- [23]. Liebowitz, J. (2009). Knowledge Retention: Strategies and Solutions. <https://doi.org/10.1111/j.1540-5885.2006.00214.x>
- [24]. Marsh, S. J. and Stock, G. N. (2006). Creating dynamic capability: The role of intertemporal integration, knowledge retention, and interpretation. *Journal of Product Innovation Management*, 23(5), 422-436.
- [25]. Mayo, A. (2003). Irrecoverable losses. *Training Journal*, June, p. 48.
- [26]. Nicholson, N. (2008). Empower the next generation. *Communication World*, 25(2), 14-18.
- [27]. Noe, R. A., Colquitt, J. A., Simmering, M. J. and Alvarez, S. A. (2003). Knowledge management: developing intellectual and social capital, in Jackson, S. E., Hitt, M. A. and DeNisi, A. S. (Eds), *Managing Knowledge for Sustained Competitive Advantage: Designing Strategies for Effective Human Resource Management*, Jossey-Bass, San Francisco, CA, pp. 209-42.
- [28]. Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, 5(1) pp. 14-37. <https://doi.org/10.1287/orsc.5.1.14>
- [29]. Olivera, F. (2000). Memory systems in organizations: An empirical investigation of mechanisms for knowledge collection, storage and access. *Journal of Management Studies*, 37(6), 811-832. <https://doi.org/10.1111/1467-6486.00205>
- [30]. Perrott, B. E. (2007). A strategic risk approach to knowledge management. *Business Horizons* , 50(6), 523-533. <https://doi.org/10.1016/j.bushor.2007.08.002>
- [31]. Raisch, S., Birkinshaw, J., Probst, G. and Tushman, M. L. (2009). Organisational ambidexterity: Balancing exploitation and exploration for sustained performance. *Organisation Science*, 20(4), 685-695. <https://doi.org/10.1287/orsc.1090.0428>
- [32]. Silke, B. and Alan F. (2000). The transfer of knowledge and the retention of expertise: the continuing need for global assignments. *Journal of Knowledge Management*, 4(2), pp. 125-137. <https://doi.org/10.1108/13673270010372251>
- [33]. Sandhawalia, B. S. and Dalcher, D. (2011). Developing knowledge management capabilities: a structured approach. *Journal of Knowledge Management*, 15(2), 313-328. <https://doi.org/10.1108/13673271111119718>
- [34]. Silke, B. and Alan, Fish. (2000). *Journal of Knowledge Management* ,4 (2), 125-137. <https://doi.org/10.1108/13673270010372251>
- [35]. Starbuck, W. H. (1992). Learning by knowledge-intensive firms. *Journal of Management Studies*, 29(6), 713-740. <https://doi.org/10.1111/j.1467-6486.1992.tb00686.x>
- [36]. Sveiby, K. E. (1997). *The New Organizational Wealth: Managing and Measuring Knowledge-based Assets*, Berrett-Koehler Publishers, San Francisco, CA.
- [37]. Walsh, J. P. and Ungson, G. R. (1991). Organizational memory. *Academy of Management Review*, 16(1),57-91. <https://doi.org/10.5465/amr.1991.4278992>

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