

Enhancing Process efficiency through Lean practices in IT industry

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Abstract— IT industry is constantly facing the pressure of enhancing process efficiency. Lean Management is a process used to reduce the waste in the process of an organization and also to improve the process. In most IT Companies there are different types of recruitment processes which are very cumbersome, where waste can be incurred, and this waste would hinder the recruitment process. This study identifies the prominent wastes that are hindering the recruitment process with respect to quality, cost, time. It further analyses as to see that how the implementation of Lean Management in the IT sector would help in identifying and removing the waste and improve the effectiveness of the recruitment process.

Keywords—Process efficiency, IT industry, Digital world, recruitment process

I. INTRODUCTION

The Digital world and IT dominated processes call for enhanced process efficiency to sustain competitive advantage in organizations. Recruitment is very important for any firm irrespective of any field or any operations it has. All sectors in different industries conduct recruitment process to hire good candidates who would fit for the job and also for the organization to accomplish its work, grow in this field and also have good profits and revenue. Many organizations conduct the recruitment process in different methods such as campus recruitment, direct-walk-in, or sourcing through the different job portals, all these would incur lot of cost for the organization and there would not be any guarantee that they would get the right fit of candidates for the organization. Lean Management is used to eliminate the waste in various processes of the organization and these practices would help the organization to improve the effectiveness of the process also. When any company wants to improve its process and reduce the cost it can use these lean principles, Many Manufacturing companies use certain lean Management tools such as kaizen for continuous improvement, Six Sigma for quality improvement and virtual stream mapping and many others. All these would help in aligning the process rightly by reducing the wastage and also deliver good products with good quality.

In IT Industry lean has not been very prevalent especially in the recruitment process. But today's changing world, many recruiters are thinking to apply the lean management process in the recruitment process. There is a very huge cost involved in it and also it is a responsibility of the recruiter to hire the right candidate who performs well in the organization later

after hiring. To improve this, the hiring manager can use the lean practices. The recruiters need to understand the importance of change and as well as communicate this with the senior and take the right decisions. The hiring manager is adhered to implement this lean practice in the company to identify the wastages which are occurring in the recruitment process. There would be many wastes accumulated while hiring and this waste may be in time or more cost occurring for the recruitment or also it can be occurred where right quality cannot be hired. Recruiters are efficiently used to select the best candidate for the organization, and these wastes might test their credibility.

The wastes which occur can be in any form, there might be wastages which occur when there is more accumulation of resumes and segregating the resumes is not done properly, when there is over processing of the data and duplicating of the data points i.e when the background verification process is done too much and the data and the files are checked for a long time than necessary. This might lead to the occurrence of errors and waste of time also. Sometimes there would be multiple interviews conducted and also there won't be any structure in the interview process which also may not give efficient candidates and also waste of resources and cost of recruitment may increase. There can be occurrence of errors while entering manual data, now a days most companies have improved their process through Applicant tracking system but still many use the manual way of data entering which may have so many errors. Waiting time is more during the recruitment process, the candidates are made to wait for a very longer time for each and every round and this may make some candidates switch to other companies which can be a very great loss for the company, Sometimes they are made to wait for four to five days for the next round and also the waiting time before joining the organization is also too long, some companies give offer letters to candidates after a year also by putting them in pipeline, this might make the company loose good quality of candidates, so the IT Companies should now try to revamp their recruitment structure to eliminate these wastages through lean practices and this would make them get good quality of candidates who perform well after hiring.

This paper discusses about the benefits that organization would get by using the lean practices in the recruitment process and this would also help in the effectiveness of the recruitment process with respect to cost, quality and time, this would also help in getting the company good results due to the hire of good quality candidates and financial benefits too.

II. LITERATURE REVIEW

Literature review on Lean Practices, in Recruitment

Parkes (2015) has elaborated about how lean management has first started in the manufacturing department in the Toyota plant by Taichii Ohno, which was first implemented in the TQM department[1]. Kronos (2010) described that lean management actually helps in identifying the non-value added labour and also when technology like this increases and improve the quality of the work force it also helps in increasing motivation for the other employees in the company to work better and give good results for the organization[2]. Sua´rez-Barraza (2010) lean implemented in a Mexican public service organization where they reduced the hiring process cycle time and also improved the staff by redesigning the jobs using a virtual production line [3]. Corbett (2011) applied lean six sigma in two companies to improve their quality and this was added as their suite of tools which gave them financial benefits and also found it helpful in their project based structure approach [4]. Sahay (2014) discussed about different types of wastes that can be eliminated such as waiting time, over production, over processing, inventory, transportation, rework, motion, all these wastes can be eliminated through the lean management technique which is used in recruitment process. These are most crucial wastes which occur while recruiting and affect the process [5]. Forrester (1995) drew attention to have right employees at the right job, check the reliability of the selection program, lean applied to change the sustenance process in a way and also make it a people driven process, which indeed improves job satisfaction of the people [6]. Macaulay (2006) used Six sigma in hiring helped a company to reduce its cycle time from 6 weeks to one week, lean practice can actually help in reducing the waiting time and improve the process, kaizen to improve the employee productivity, it also helped employee to be creative in problem solving and understood that kaizen is one way which helps in developing the human resources especially in recruitment [7]. Sara(2007) applied lean and made the recruitment process very simple, usage of the electronic means have helped the company in cutting its cost and also enhance its recruitment process, using lean methodology many companies identified that it is not only helping in reducing cost but also it will combat shortage skills and talent[8]. Workforce Management (2010) GE HealthCare has applied lean management in recruitment to eliminate waste and find efficient candidates, and also virtual stream mapping with the applicant tracking system to streamline their recruitment process in a very clear way and also it would address the unneeded efforts in the recruitment process[9]. Higgins (2007) identified that lean practices helps the company to make the recruitment process very smoothly without any much failures, it also helps in the improvement of the systems and new technology and less time, and cost in the process[10]. Sparrow (2007) reported on a study of firm-level developments in international recruitment and selection where various strategies were discussed for efficient recruitment [11]. Bieg and Walton (2014) made that the core philosophy in hiring process is that the clients internal or external should not pay for the mistakes or the waste which occurs but for the value which we get. Lean in hiring process not only reduce waste but also gives a competitive edge over other and also helps in the sustainability and reality of the whole process and the organization[12]

III. METHODOLOGY

A. Questionnaire Development and Measures

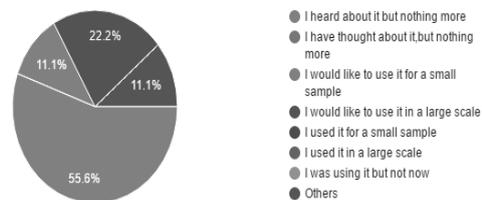
The questionnaire was designed to understand the recruiter’s perspective of the lean management application in the organization especially in the recruitment process, where questions were asked about background verification process, resume handling over of offer letters, waiting time for receiving offer letters or for the next rounds of the interview process, these questions were prepared by taking the literature review and applying it in the questionnaire in recruitment This was very useful as not much work has been done in the area of lean in recruitment especially in the IT industry. The questions mostly were related to understand the waste which gets accumulated during these activities in the recruitment process and also to know how this is affecting the effectiveness of recruitment with respective to cost, quality and time. The questions developed for this study about lean recruitment involved reference from a detailed report by Pete Abilla (2014) [13] based on this the formation of questions using lean concept was done.

B. Data Description

The responses which were received were nearly 138 and using these responses which were from the recruiter’s perspective of lean management across various IT companies of various cities. The respondents were asked questions and also to rate their agreement from strongly agree to strongly disagree. This study can be carried out to understand how management can be applied in the company in the recruitment process or not and whether it help in the effectiveness of the recruitment process with respective to cost, quality and time. Here linear regression is applied taking dependent factors as cost, quality, time and the wastes which are eliminated during lean management process as the Independent factors.

IV. ANALYSIS

The following graph shows how many recruiters actually know about lean Management or had an experience with it



Here when the recruiters were asked their experience with lean 55.6% said that they heard about it but nothing more.



Here when the recruiters asked about their organization experience in lean management 60% said that their organization heard about it but nothing more. Here we can evidently say that

generally in IT Companies lean management is not prevalent and many are not using this technology, but know about this and 20% said that they would like to use it in a very large scale, so some are in a way trying to implement this.

data and transportation is very crucial wastes which occur during the recruitment process.

V. RESULTS

TABLE 1: REGRESSION ANALYSIS MODEL

Model Summary for Lean Recruitment				
Model	R	R Square	F Change	Sig.
1	.597	.356	4.029	.001
Dependent Variable: Lean Recruitment Predictors: Inventory, Waiting time, Over processing, Over production, motion, rework, Transportation				

TABLE 2: REGRESSION ANALYSIS (DEPENDENT VARIABLE: LEAN RECRUITMENT)

Independent Factors	Beta	Sigma
Waiting time	.180	.003
Over Processing	.034	.531
Transportation	.005	.940
Over Production	-.112	.008
Rework	-.055	.402
Motion	-.023	.662
Inventory	-.074	.109

Dependent Variable : Lean Recruitment
Independent Variable : Waiting time, transportation, over processing, over production ,rework, inventory

Here from the Table 1 and 2 we can observe that these different wastes actually occur in the recruitment process and most prevalent, here we can say that waiting time, over processing of

TABLE 3: REGRESSION ANALYSIS MODEL

Model Summary for Lean Recruitment				
Model	R	R Square	F Change	Sig.
1	.541	.292	3.012	.010
Dependent Variable: Cost Predictors: Inventory, Waiting time, Over processing, Over production, motion, rework, Transportation				

TABLE 4: REGRESSION ANALYSIS (DEPENDENT VARIABLE: COST)

Independent Factors	Beta	Sigma
Waiting time	.055	.696
Over Processing	-.147	.275
Transportation	-.144	.358
Over Production	.034	.731
Rework	.235	.143
Motion	-.014	.916
Inventory	.375	.001

Dependent Variable : Cost
Independent Variable : Waiting time, transportation, over processing, over production ,rework, inventory

TABLE 5: REGRESSION ANALYSIS MODEL

Model Summary for Lean Recruitment				
Model	R	R Square	F Change	Sig.
1	.302	.091	0.729	.011
Dependent Variable: Quality Predictors: Inventory, Waiting time, Over processing, Over production, motion, rework, Transportation				

TABLE 6: REGRESSION ANALYSIS (DEPENDENT

VARIABLE: QUALITY)

Independent Factors	Beta	Sigma
Waiting time	.029	.005
Over Processing	.016	.020
Transportation	.013	0.04
Over Production	.004	.002
Rework	.010	.050
Motion	.250	.042
Inventory	.069	.054

Motion	.416	.005
Inventory	.259	.041

Dependent Variable : Time
 Independent Variable : Waiting time,
 transportation, over processing, over production
 ,rework, inventory

The above tables represent how lean management in recruitment can enhance the effectiveness of recruitment with respect to cost, quality and time, here we can see that the p value is usually less than 0.05 and due this we can say that by eliminating these wastages in the recruitment process, the effectiveness of the recruitment process can be improved.

Dependent Variable : Quality
 Independent Variable : Waiting time,
 transportation, over processing, over production
 ,rework, inventory

VI. CONCLUSION

Here we can understand that usage of lean management in IT is very less, but they consider cost, quality and time as the crucial factors for recruitment, we can say that these are dependent on the wastages which occur in the recruitment process, and when these wastes are eliminated the efficiency of the process also increases. Most companies have a very less idea about lean practices, but realize that these practices in IT Sector has become very important. Reducing these wastes actually helps the organization to reduce their investment, and also speed up the process, and later they can also observe the candidates performing well in the organization and giving good results.

TABLE 7: REGRESSION ANALYSIS MODEL

Model Summary for Lean Recruitment				
Model	R	R Square	F Change	Sig
1	.671	.450	5.956	.000
Dependent Variable: Time Predictors: Inventory, Waiting time, Over processing, Over production, motion, rework, Transportation				

VII. LIMITATIONS

It is being assumed that most of the respondents have filled the questionnaire rightly and accuracy is maintained. This research is limited to only one sector which is the Information Technology Sector. In future this can be extended into various verticals and various other Industries also. This was not done to comment on the recruitment process of the companies, but to give awareness to them that some wastage might occur during their process which they can easily remove with help of lean Technology

TABLE 8: REGRESSION ANALYSIS (DEPENDENT VARIABLE: TIME)

Independent Factors	Beta	Sigma
Waiting time	.109	.490
Over Processing	.197	.191
Transportation	.162	.353
Over Production	-.332	.004
Rework	-.763	.000

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