Case Study: Lead Time Management In Furniture Manufacturing

Wan Fadlina Binti Wan Chik Ahmad and Norhafizah Rosman
Department of Wood Industries, Faculty of Applied Sciences, UiTM Cawangan Pahang

Abstract

Lead time management is needed in most activity to get the good quality of the product and management. Lead time is the amount of time between the placing of an order and the receipt of the goods ordered. Time in the organization is constant and irreversible. TIRAI INNOVATIF Sdn.Bhd. was chosen for this experiment becquse the important of the successful of the company depends on timing of the company finish their product. It will keep their reputation that can finish their work on time. In measuring time the method that use is stopwatch that can record time workers work and get the result refer to the time record. The timing that was taking was the result that needed to discuss and to know the effectiveness labor to finish the product and the efficiency of labor refers to the product. Nothing can be substituted for time. Worse, once wasted, it can never be regained. Efficiency and effectiveness of labor is important to help company to produce output on time.

***Keyword**: Lead time management, TIRAI INNOVATIF Sdn Bhd, stopwatch, efficiency, effectiveness.*

INTRODUCTION

Lead time is the amount of time between the placing of an order and the receipt of the goods ordered. Time in the organization is constant and irreversible. Nothing can be substituted for time. Worse, once wasted, it can never be regained. Leaders have numerous demands on their limited time. Time keeps getting away and they have trouble controlling it. No matter what their position, they cannot stop time, they cannot slow it down, nor can they speed it up. Thus, time needs to be effectively managed to be effective.

What most people actually need to do is to analyze how they spend their time and implements a few time saving methods that will gain them the most time. Many people have problem of the biggest time waster for example they creating inefficiency by implementing first instead of analyzing first. Beside that they also make unrealistic time estimates. An unnecessary error is like not enough time to do it right, but enough time to do it over .That was the most situations that have in company.

The labor`s skill of company are important. The company have specialize the labor who are the skills person and who are the semi skill. In company the time of manufacturing in certain product are important. The skill labor will manage the product faster than the fresh labor. The skill labor will conduct the production to be on time.

The company that we choose to do the experiment is TIRAI INNOVATIF Sdn Bhd. That was manufacture furniture and interior design. By having a benchmark we can

observe what is needed to be as effective and efficient in time management. The time management also has significant of the company during product manufacturing.

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MATERIALS AND METHODS

Stopwatch

A stopwatch is a handheld timepiece designed to measure the amount of time elapsed from a particular time when activated to when the piece is deactivated. A large digital version of a stopwatch designed for viewing at a distance, as in a sports stadium, is called a stop clock. (annynomous, 2011)

In this experiment one labor was chosen to take timing of their work. How many time they take to make the product. The time will be effective to the job or not and the effectiveness of labor for the product. The measurement how long they take time to do the product using stopwatch during working running. During time taking the attitude of the workers was be take to know the problem of the workers during working hour. The stopwatch was running and the time was stop if the product was fully finished.

The timing functions are traditionally controlled by two buttons on the case. Pressing the top button starts the timer running, and pressing the button a second time stops it, leaving the elapsed time displayed. A press of the second button then resets the stopwatch to zero. The second button is also used to record *split times* or *lap times*. When the split time button is pressed while the watch is running, the display freezes, allowing the elapsed time to that point to be read, but the watch mechanism continues running to record total elapsed time. Pressing the split button a second time allows the watch to resume display of total time.

Mechanical stopwatches are powered by a mainspring, which must be periodically wound up by turning the knurled knob at the top of the watch.

Digital electronic stopwatches are available which, due to their crystal oscillator timing element, are much more accurate than mechanical timepieces. Because they contain a microchip, they often include date and time-of-day functions as well. Some may have a connector for external sensors, allowing the stopwatch to be triggered by external events, thus measuring elapsed time far more accurately than is possible by pressing the buttons with one's finger. The first digital timer used in organized sports was the digit timer, developed by Cox Electronic Systems, Inc. of Salt Lake City Utah (1971). It utilized a Nixie-tube readout and provided a resolution of 1/1000 second. Its first use was in ski racing, but was later used by the World University Games in Moscow, Russia, the U.S. NCAA, and in the Olympic trials.

The device is used when time periods must be measured precisely and with a minimum of complications. Laboratory experiments and sporting events like sprints are good examples.

The stopwatch function is also present as an additional function of many digital wristwatches, cell phones, and portable music players. (anonymous, 2011)

The formula to calculate the efficiency of workers is:

The time taken by a worker x 100 ÷ standard time allowed

For example assemble part:

35 minutes x 100 ÷ 20 minutes = 175

RESULTS AND DISCUSSIONS

The process of making the rack that the company do have 5 step which is Rough Cut, Gluing process (making frame for leg, top and rack), Actual Cut (top, rack and leg), Edging process and the last process is Assemble. Figure 1 show that timing of the labor takes during rough cut. This process was being rate by 98%. The rough cut is the process to starting the manufacturing shelf. From the first timing the labor has to cut the wood roughly to get the good measurement. The rough cut is the process which is does not have to know the actual measurement and just cut the wood same size for do it the next process. The timing was taken to know the efficiency of the workers. This graph show the timing not so efficient because the timing has to be decrease to show the labor effectiveness but for the first time labor shows their attitude that has error of time working. They do not take serious during working. The labor will show the quicker until the timing number five and the labor will start error with their attitude over again. The labor has skill that even though the timing errors they still make the work carefully. Other than that the machine also distant from the material place, so it also disturb the timing during working.

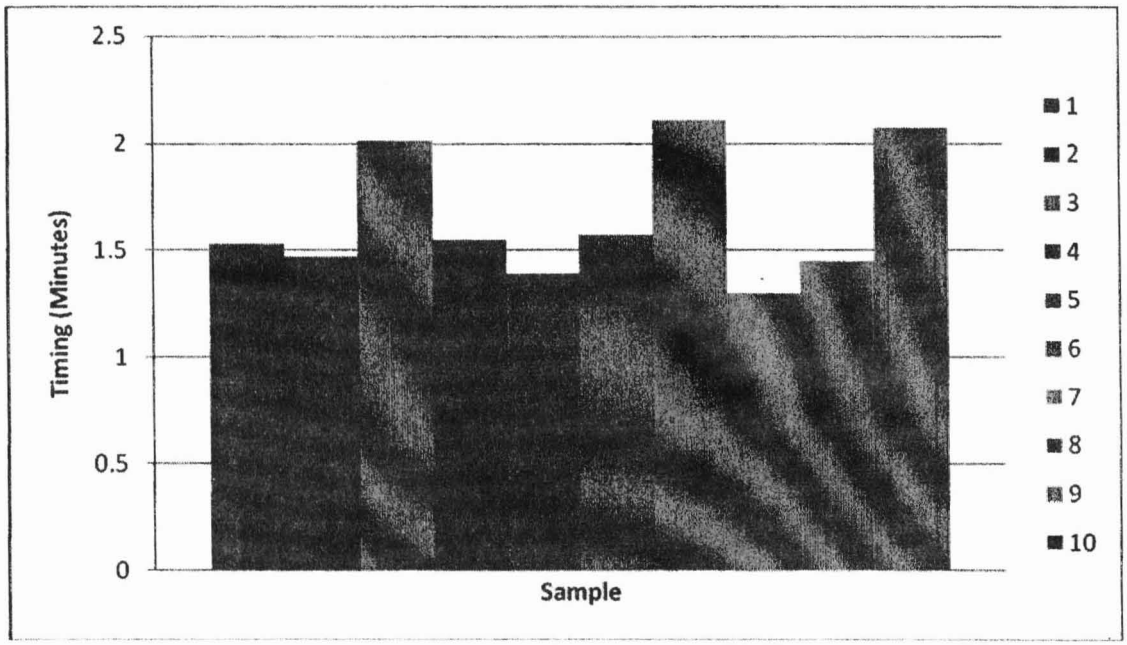

Figure 1: Rough Cut Process

Figure 2 shows that the timing taken by labor during gluing process. The rate based on the graph in gluing process was 90%. The rating factor for gluing process it is badly on the workers performance. This process starts with put the plywood top and back to glue with core of the sample. The core was taking any wood. The workers do not excellent because the workers do not take serious during gluing process. The idle time of workers too long and make the process take more time. The glue has to one day left to make sure the glue completely dry. This is evidence because based on the graph the labor has error on all sample exclude sample 2, 6, 7 and 10. During this process the distant do not be taken as a problem to the timing. It is because gluing process was running at static place and short movement during working. The labor takes it easy about the process because they think e the process so easy.

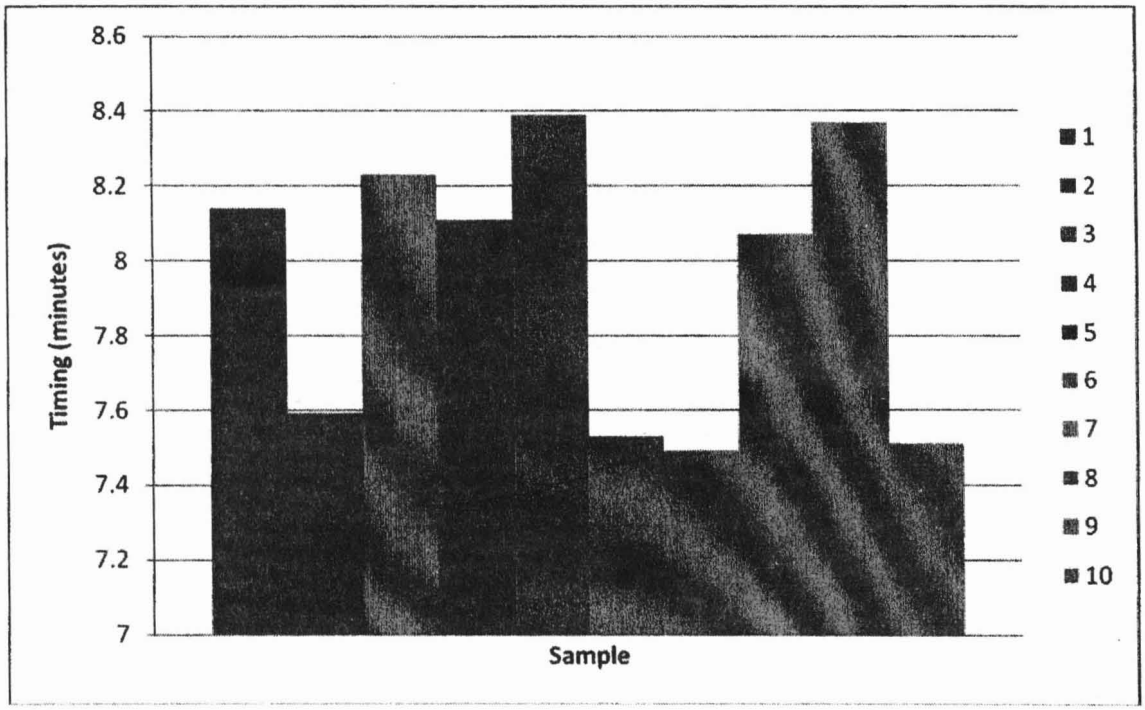

Figure 2: Gluing process

Figure 3 shows that the timing of actual process. In the actual cut the workers just cut the sample to the true cut. This looks like easy but need patience during this process. This process has to measure the sample one by one to make sure the measurement between both side legs was same and not have error on that. The rating factor on this process is 95%. This rate is enough for this process because even though the workers so patience but their attitudes still same with the rough cut and gluing process. The workers performance will affect the timing on doing the product. However, the workers still doing according to the time set by the company. Other than their attitude the problem are on this process on setting the blade of machine to make sure the measurement same with the design. The blade sometimes uncontrolled and make the measurement lost from the actual measurement.

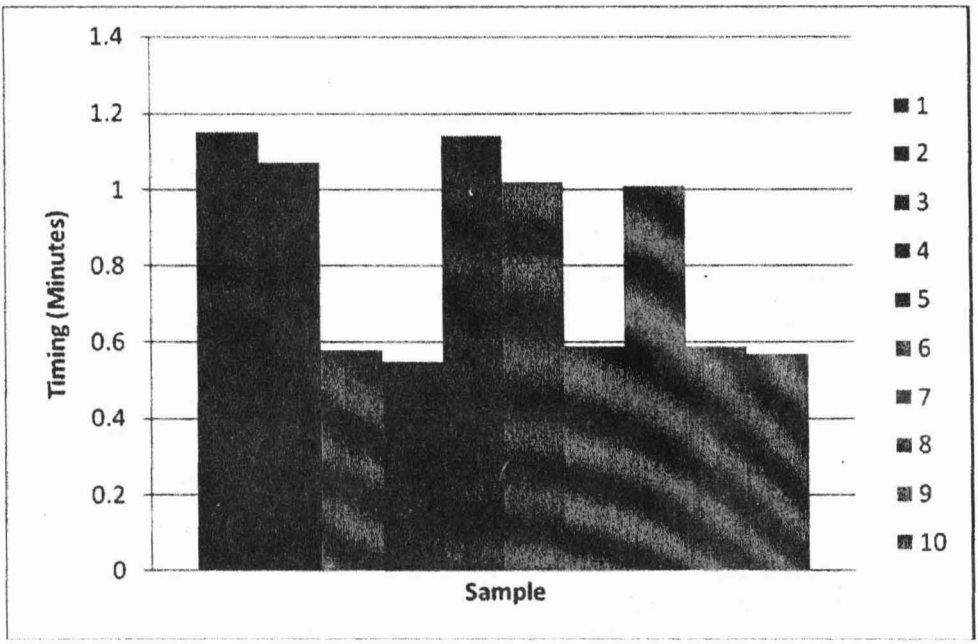

Figure 3: Actual Cut Process

Figure 4 shows that the timing taken of workers during edging process. The rating factor of this graph is 95% it is also the same with actual cut process because the graph fluctuate more than good timing taken. The fluctuate means the workers not maintain their timing and have error of doing this process. The edging process is start with put glue on edging and left 5 minutes before installing. After that the time will continue with installing edging. The installing process started with legs that use rubber edging and lastly the rack with wood edging. Based on the graph during installation edging, workers have problem with the tools because the tools have to be sharpening to get the quality of the product. On the sample no 1 the timing takes so long because the workers do it two times to get the right and quality of the edging.

Figure 5 show that the time taken during assembles process. The rating factor of the assemble process is 100%. This rate is normal than better performance. The assemble process have a normal performance because the workers want to finish the product immediately. The assembling was started with installing the leg of the shelf and balancing the shelf with install the back of the shelf. After the balancing the inside of the shelf will screw it to put the rack in middle. The shelf will be finish after put the glass on it. The installing glass was taking 5 to 10 minutes. The graph timing not includes the installing glass because the glass will be installing after all the shelf were finish. In this timing the workers take too much time on first sample because in the first sample they have to measure the same place to screw that is why they take too long on the first sample. The sample also have problem on during install the back of the shelf because the size not fit with the shelf because this cause on actual process. The sample was finish without the glass.

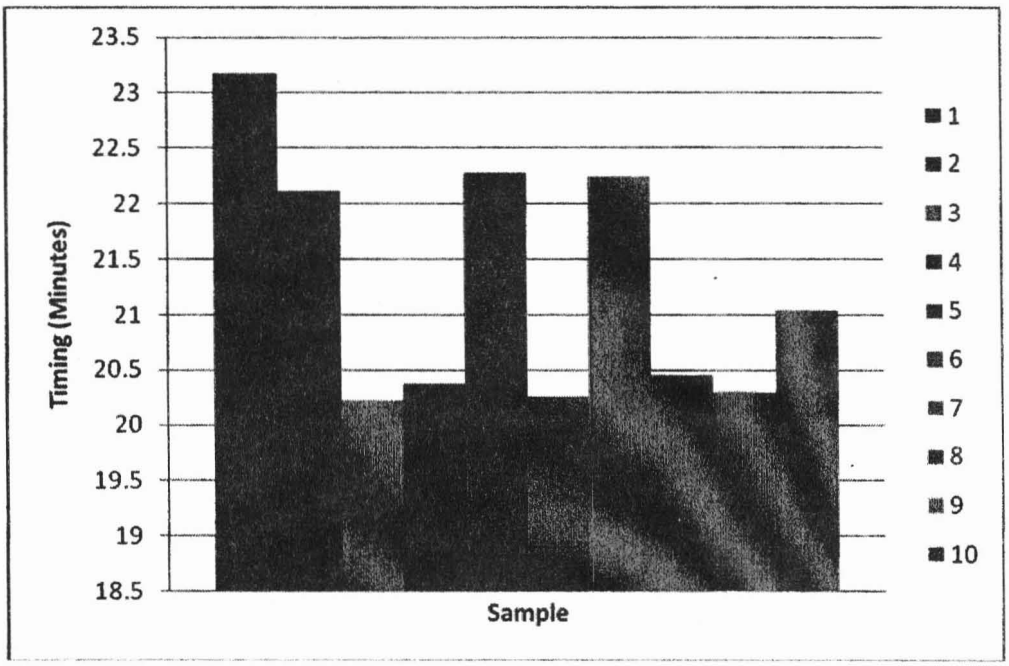

Figure 4: Edging Process

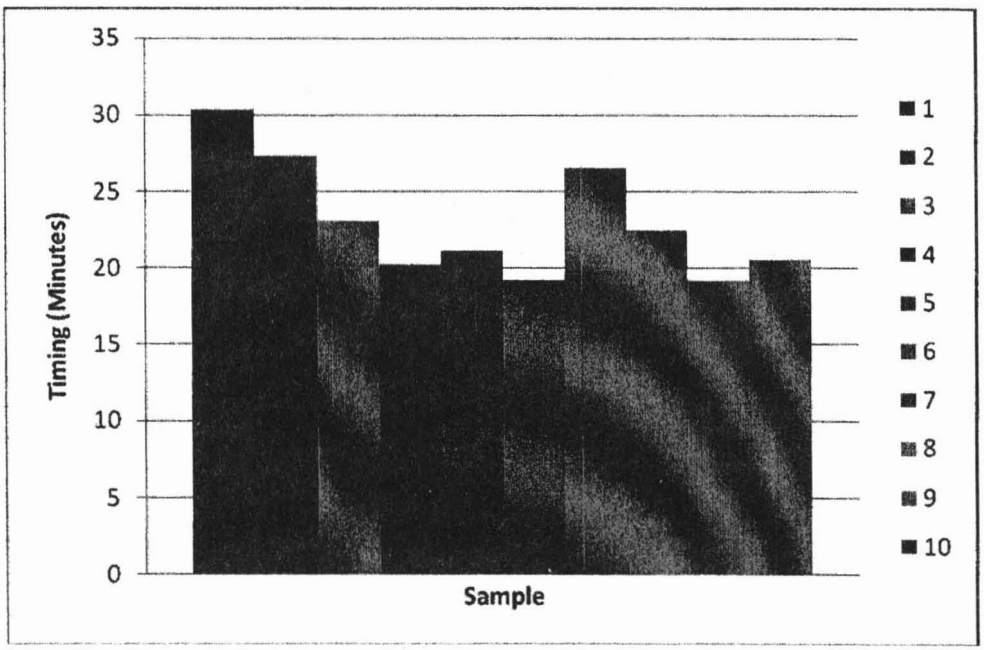

Figure 5: Assemble Process

CONCLUSIONS

In conclusion on this study is labor is most important for company to get the right timing on finish product. Labor is known as an asset to the company; beside that labor also give profit to the company. The term labor in its most general use refers to productive human work.

Time is money, so waste times same with waste money. Time is important to company to finish product on time. Time and workers will work together to get the quality and finish on time on manufacturing. Without time workers do not know the range to finish the product.

In this study the efficiency of worker is less satisfactory because they have become accustomed to the way they work. For this study the labor not to pursue the work. They more take advantage to claim overtime. This causes the effectiveness of the workers have no work. The results also show the attitude that has to change because to get the good reputation of the company labor should jointly take care of the company. The workers in this study did not take serious on their job, although they are good workers, but if it does not do the work in a short time the company`s reputation can be dropped.

The efficiency of the product do not occur because of the workers do not work based on goals. They just want to finish the product and get wages from that. So to identify the production efficiency the worker need to know how to achieve company goals. A worker is the method which is driving company towards success so workers has to work based on company target. To recognize the factor effectiveness of production or product output workers should have the value of finding solutions while working. This may make workers prefer to work in all circumstances. However workers should not be stiff in the entire problem because all problems should be solved by the employer. The problem in timing can be done by changing the way workers work. With their attitude changes the company will get benefit on that situation.

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Wan Fadlina binti Wan Chik Ahmad, Faculty of Applied Sciences, UiTM Pahang.
wanfadlina@gmail.com cat@pahang.uitm.edu.my