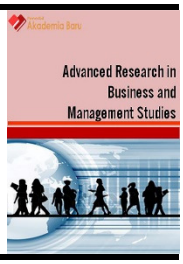
Penerbit Akademia Baru

Journal of Advanced Research in Business and Management Studies

Journal homepage: www.akademiabaru.com/arbms.html
ISSN: 2462-1935




# Waste elimination via suggestion scheme in aluminium industry

Open Access

Nawaf Al-shehhi[1,*], Khairur Rijal Jamaludin[1]

[1] Razak School of Engineering and Advanced Technology, Universiti Teknologi Malaysia Kuala Lumpur, Jalan Semarak, 54100, Kuala Lumpur, Malaysia

**ARTICLE INFO**

***Article history:***
Received 7 July 2017
Received in revised form 15 July 2017
Accepted 15 August 2017
Available online 25 August 2017

***Keywords:***
Suggestion scheme, ideas management, innovation, lean manufacturing, continuous improvement

**ABSTRACT**

The main objectives of this explanatory research paper; first is to identify how the suggestion scheme is being utilized to reap the fruitful business results, plant performance and cost saving through lean concept, waste elimination, in the aluminium manufacturing industry based in UAE. The second objective is to explore the pathway of each suggestion by crossing different levels for approval and gets implemented. This study illustrates the experience of a single organization and the outcomes.



## 1. Introduction

In the current competitive market place, many organizations are facing vicious economic challenges whereby these organizations are prone to change the way they work and streamline their internal processes. As we are working in a highly saturated market, various intellectual tools have evolved to assist companies to improve operations, enhance profitability, provide sustainability and increase customer satisfaction [3].

In his book, *The Machine That Changed the World*, Womack [1] described the significant advantage of Japanese car manufacturers over their competitors. This advantage arose because of a unique manufacturing philosophy, named lean production. This production philosophy is also known as Toyota Production System as it was devised and implemented by Toyota Production plant in Japan after World War II [5]. Lean is a philosophy that seeks to eliminate waste in all aspects resulting in overall improvement of operation; thereby it has been accounted as a competitive advantage of the company. Lean techniques motivate the employees' involvement through proper implementation these tools such as; staff suggestion scheme, Kaizen and A3 problem solving [6].

Staff suggestion scheme is one of lean manufacturing tools that is designed under operational excellence journey in the one of the companies based in UAE. The target of this scheme is to stimulate

* *Corresponding author.*
*E-mail address: Nawaf Al-shehhi (alshihi@engineer.com)*

employees' creativity, fostering continuous improvement in their activities and achievements through continuous generation of ideas [4].

Structured suggestion is given with the aim of improving the processes from 8 wastes categories adopted from a lean standpoint [5]. A proposal or a suggestion can be defined as "structured" when it contains:

- Problem/opportunity identification
- Cause analysis
- Proposed solution

The human resources are vital factor for the organization's success and may provide the best return on investment for a sustainable competitive advantage [5].

## 2. Waste Elimination through Suggestion Scheme

The main purpose of lean manufacturing is waste elimination which identified by Toyota production system and later on elaborated by Womack and Jones [1]. The eight waste factors are; transportation, inventory, motion, people, waiting, over processing, over production and defects [3]. The Company X added EHS in the suggestion scheme as one more factor although it is not considered as waste.

i. **Transportation -** It is the unnecessary movement of materials and/or equipment around the workplace. For instance, the unnecessary movement of forklifts trolleys and files.

ii. **Inventory -** It is the storage area of material in a quantity more than required to actually perform the job. For example, the existence of excess raw materials more than the required amount is a form of waste.

iii. **Motion -** It is the unnecessary movement of people in the work area such as; the operator searching his tools and /or repeated movements like bending, stretching.

iv. **Waiting -** It is the Idleness of the operators in the work area such as waiting for the materials or waiting for the maintenance technician to repair your machine.

v. **Over production -** It is the production in a quantity greater than required by the next step in the process or customer. It is known as the Mother of all Wastes since it gives rise to other wastes like Transportation, Inventory etc. For example; producing more 'just in case' it is required, printing more copies than is actually required.

vi. **Over processing -** It is doing more work than is actually needed to conform customer requirements. For instance, Excess marking of products, repeated cleaning, colour printing where black & white are sufficient.

vii. **Defects -** It is the rework, reprocessing or scrap that occurs in the process due to improper design or workmanship such as; Physical damages on product, machine breakdown due to improper maintenance, data entry errors.

viii. **People -** In addition to the seven wastes mentioned above (classical wastes), it has been recognized in recent years that people not being able to perform to their full capability is also a waste. This waste occurs when people are underutilized or in emotional discomfort. People have been considered as waste when they are not given responsibilities in line with their ability, qualification & experience. People are stressed, overworked, not motivated.

ix. +**EHS** (Environment, Health & Safety) - Although EHS is **not** considered a waste category; however, poor EHS is considered to be a waste, and can be improved through the suggestion scheme such as; dirty, hazardous & un-ergonomic conditions de-motivate people and also make it physically impossible to work at the desired level.

The connection of suggestion scheme with waste elimination is depicted in Figure1.

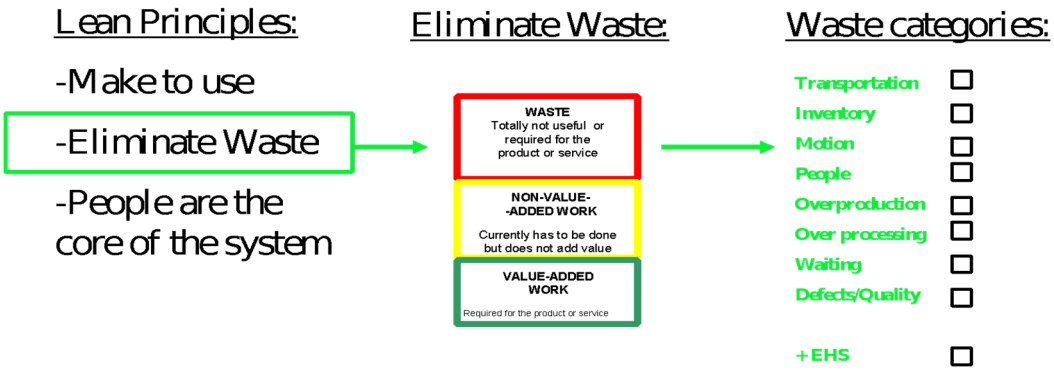



**Fig. 1.** The connection of suggestion scheme with waste elimination factors

## 2. Suggestion Scheme in the Company X

Company X is a strong believer of Continuous Improvement, thus, one of its core values is “Improvement is every day's job”. The Company X is encouraging its employees to change for the better. The culture of Continuous Improvement (CI) comes to it from the Japanese manufacturing, where it is called “Kaizen" which means "change for the better" [5]. The philosophy of “Kaizen Teian”, Suggestion Scheme, focuses on small, fast changes in big quantities, which equates to a big jump in improvement as a whole [6].

### *3.1 Process flow of the suggestion scheme*

Company X has a centralized process through suggestion scheme unit, manned by one dedicated employee and an administrator; however, both are reported directly to senior manager of lean manufacturing department. The process flow works as follows:
The suggestion's proponent will fill in the web form completing all the mandatory fields. The proponent needs to add the names of all members if the suggestion is proposed by a group. If they need help, the immediate supervisor can be asked to clarify any doubt and to support them with the required information. If the suggestion is not clear or missing important fields, it would be sent back for amendment. The proponents will receive a confirmation message on the screen on successful submission. The proponents would be notified at every stage when the suggestion is forwarded to the next approval stage [2].

One mail will trigger to Supervisor of the proponent with request details and request link and would do the first approval/rejection and the proponent or team would be notified accordingly. If the suggestion passes the supervisor check, then it is forwarded to the Department Chairperson & Committee for further approval or rejection and assignation of the correspondent value based on the waste factors described above [2].

If it’s approved, the Suggestion is forwarded to the implementer appointed by the Department Chairperson & Committee. After implementation, the implementer updates the implementation date in the system with the cost of implementation if it is available [2]. An illustration of the process flow of Company X is shown in Figure 2.

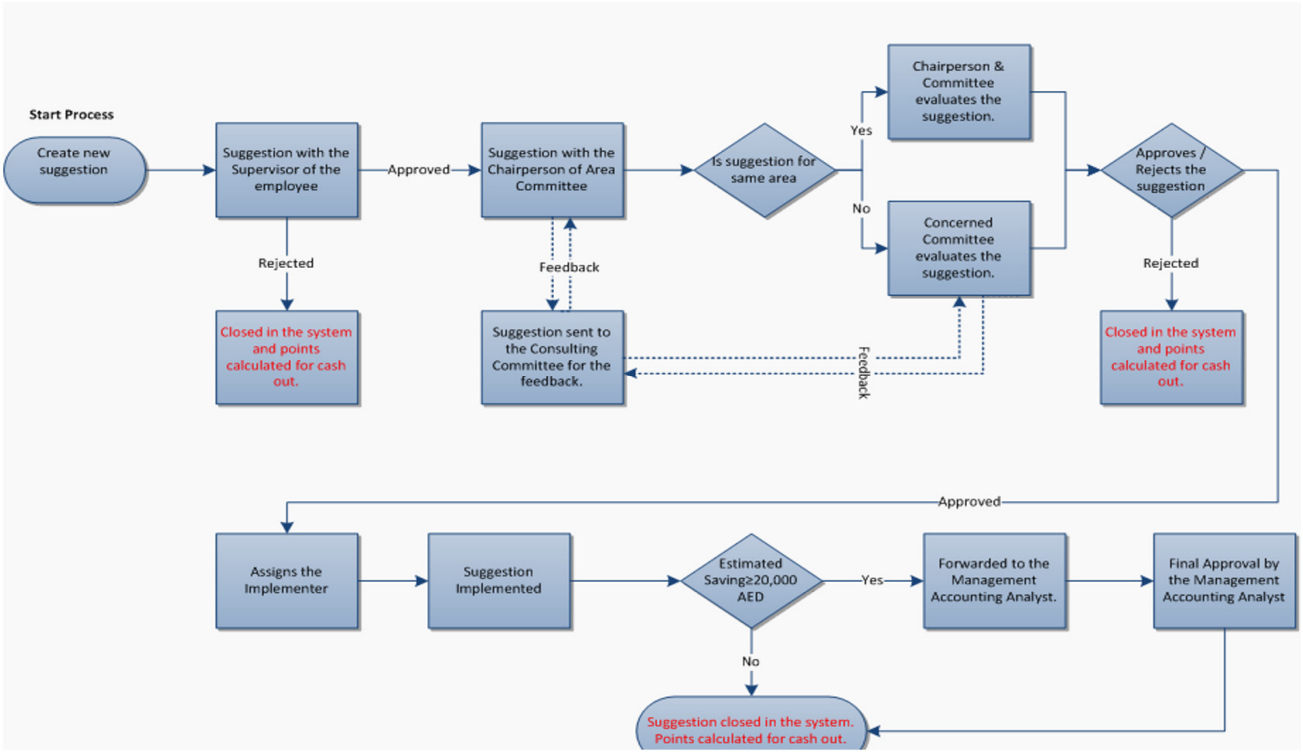



**Fig. 2.** The process flow of suggestion scheme in company X

Company X is rewarding the proponent even if the suggestion is rejected. The rewards gird is updated in Table 1.

**Table 1**
The rewards grid

| Who | How much | When |
|---|---|---|
| Anyone who submits a suggestion, all job grades | ● Submission = 1 point = AED 20<br>● Each Waste Category = 2 point = AED 40<br>● Special Category = 2 points x 2 | After implementation, upon email request to the Suggestion Scheme |
| Supervisors Job Grade 11 and below | Supporting/Approving = 1 point = AED 20 | After implementation, upon email request to the Suggestion Scheme |
| Below Job Grade 11 (cost saving suggestion) | ● 2% from total benefit approved<br>● Savings above AED 20,000 will be rewarded only<br>● Maximum benefit rewarded AED 20,000 | After confirmation from Business Analysis, added with the cash points |
| Supervisors Job Grade 11 and below (cost saving suggestion) | Supporting/Approving = 1 point<br>0.5% from total benefit approved | After confirmation from Business Analysis, added with the cash points |

### *3.2 Data of the Suggestion Scheme*

The number of suggestions is increased drastically in the year 2010 till end of the year 2013 as shown in Figure 3 for the presented, approved and implemented suggestions. Moreover, and due to the highly motivated employees and full support from the top management beside their involvement, the participation rate of the employees was increasing rapidly.

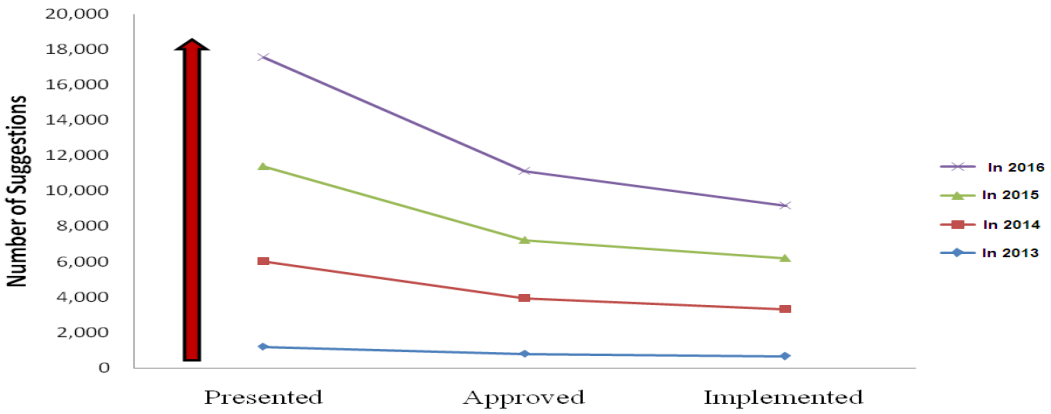



**Fig. 3.** The number of suggestions in the years 2013, 2014, 2015 & 2016

## 4. Conclusion

This paper presents an explanatory paper on the application of Suggestion scheme by harnessing the power of employees' creativity to save cost, quality improvement and employees' motivation. Staff Suggestion scheme is a humble, simple and powerful tool to create and sustain an organizational culture which supports and drives continuous improvement. It aims to become a continuously self-improving business by utilizing human resources creativity. In general, Staff suggestion scheme is popular in UAE, in spite of that, there are very less organizations that successfully connect their scheme with Lean manufacturing. It is acknowledged the fact that innovation and creativity are vital to the development and prosperity of the whole country. Although this study has been critical on the single case analysis, the outcome merits of research method can't be discounted.

## References

[1] Moneim M, Abdel. "Staff suggestion scheme (3Ss) within the UAE context: Implementation and critical success factors." *Education, Business and Society: Contemporary Middle Eastern Issues* 2, no. 2 (2009): 153-167.
[2] Company X suggestion scheme procedures, 2012
[3] El Safty, Shady Baher. *Critical Success Factors of Lean Manufacturing Implementation in Automotive Industry in China*. No. 2012-01-0516. SAE Technical Paper, 2012.
[4] Wilson, Gregory, Andries Du Plessis, and Andrew Marx. "The use of suggestion systems as a tool to solicit input from internal customers." (2010).
[5] Abdullah, Fawaz Mohammed. "Lean manufacturing tools and techniques in the process industry with a focus on steel." PhD diss., University of pittsburgh, 2003.
[6] Japan Human Relations Association. *Kaizen Teian 1: Developing systems for continuous improvement through employee suggestions*. Vol. 1. SteinerBooks, 1997.