

## Chapter 46

# An Assessment of Lean Communication at a Nuclear Power Plant

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### ABSTRACT

*Communication is the sharing of information between individuals or groups to reach common understanding or goals. Ensuring effective and efficient communication is important when dealing with complex structures such as a nuclear power generation environment. This calls for a need for partnership and dialogue between major stakeholders in government, industry, employees, and the public at large. Even though communication can alarm people to seek safety, it can be used to calm employees as well as generate a sense of urgency. This chapter uses a survey to investigate the relationship between communication and 13 critical factors of lean management principles in an organization where safety is the fundamental component of the process. Data was collected and analyzed using Pearson's correlation coefficient and regression analysis. The results show that friendliness, willingness, guarantee, criticism, self-esteem, and acceptance are positive predictors of a lean communication while responsibility is negative.*

### INTRODUCTION

Lean philosophy is the ideology of reducing or eliminating waste. Its purpose is to promote a more successful and profitable business. Currently, many businesses are indulging in lean production or lean manufacturing. They focus on eliminating waste in all parts of their production process. This minimizes the amount of sitting inventory and encourages “as needed” production. If they only produce what is demanded by customers, fewer resources would be wasted on maintaining or storing extra inventory. Lean manufacturing also involves input from the workers who work directly with the production pro-

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cess. As a result, they are able to fix problems and make improvements as needed, rather than, having to report those problems and wait until handled through higher authority. Lean manufacturing is “the key to achieve sustainable development” (Upadhye, Deshmukh, & Garg, 2010). Throughout the years, the principles of lean have been successfully applied to other areas by both researchers and practitioners.

Communication is one of the areas prone to what lean enterprise can offer. Downs and Hazen (1977) defines communication as an “intervening variable that leads to (1) productivity, (2) satisfaction, (3) labor-management relations, and (4) profit.” In any business or work place, communication is crucial, especially efficient communication. Communication can “facilitate the exercise of the functions of forecasting, organization, coordination, empowerment or control, and the participation of the members of the organization to achieving the objectives...” (Emanoil, Ramona, & Lucia, 2013). Most of the time spent within a business is used communicating.

Efficient communication is the sharing and receiving of information in a timely manner and without waste. Information should be transmitted straight to the point to be efficient. Efficiently communicating will save time, energy, and confusion; therefore, leading to the possibility of having lean communication.

This research aims to apply lean principles to communication. The goal is to find what factors can be improved to increase efficient communication. If waste can be reduced in manufacturing and production to create a more successful processes and procedures, it is possible to apply the same principals to communication needs.

## **LITERATURE REVIEW**

### **Lean Philosophy**

Lean is minimizing or eliminating waste. Waste can be categorized in eight processes: “over production, waiting, motion, transportation, inventories, over-processing, defects, and other which includes underutilized worker creativity and resource, application of non-adequate equipments and systems, wasted energy and water, (and) damage of environment” (Kovacs, 2012). Kovacs (2012) also defines lean thinking as “thinking that focuses on value added flow and the efficiency of the overall system. The goal is to keep product flowing and add value as much as possible. The focus is on the overall system and synchronizing operations. Bhasin (2011) argued why lean should be considered as an ideology. He explained that “Lean explores the conventional wisdom behind situations, identifying the root cause of issues and then proceeding to solve problems, often in a unique and spectacular fashion”.

Standard and Davis (2000) breaks down lean into three parts: lean philosophy, lean principles, and lean practices. Lean philosophy focuses on “total system efficiency, continual improvement, value-added activity, and respect for people” (Standard & Davis, 2000). Lean principles emphasizes the reorganization of “the flow of production material throughout the entire enterprise” (Standard & Davis, 2000). This is supported by lean practices by decreasing the variability of production.

In order to make lean applicable, an organization must not include one of the previously mentioned elements, but all of them. Research conducted by Bhasin (2011) “attempts to establish that Lean is a total system supporting and encouraging its employees to continuously improve the processes they work on”. This goes back to why communication and its factors are important. Continually carrying out an efficient and accurate system of communication will make the lean system beneficial. When viewing and implementing lean, Bhasin (2011) mentions that one should not look at it in a narrow sense but

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