



Case Studies



International Labour Organization

Factory Improvement Programme

Tien Bo Printing Company Using Visual Tools to Boost Productivity

Tien Bo (Progress) Printing Company was established in 1946. As a printing company it is a State Owned Enterprise. However, at the end of 2003, the company was one of the pilot enterprises to be converted into a one member limited liability company (with the State holding the one share). The company employs 400 people.

Tien Bo was interested in joining the FIP because as an SOE it is hampered by the slow SOE environment yet there is a need to increase competitiveness, particularly in the light of Vietnam's entry into the World Trade Organisation.

In the past the company had used external management consultants to address specific issues but the Director felt that the FIP would be better for the company as it is an integrated programme.

The Factory Improvement Team meet once per week and there is great enthusiasm. The actions that have been taken so far have generated interest among the entire workforce.

Initial situation

Tien Bo had already started assessing its quality as it commenced the process of achieving ISO 9001:2000 during 2006.

An issue identified and discussed with the FIP expert was the level of end line defects in the print output that the company was experiencing. The Factory Improvement Team considered that it was high (at an average of 6.7%) but had not yet analysed what was causing the problem.

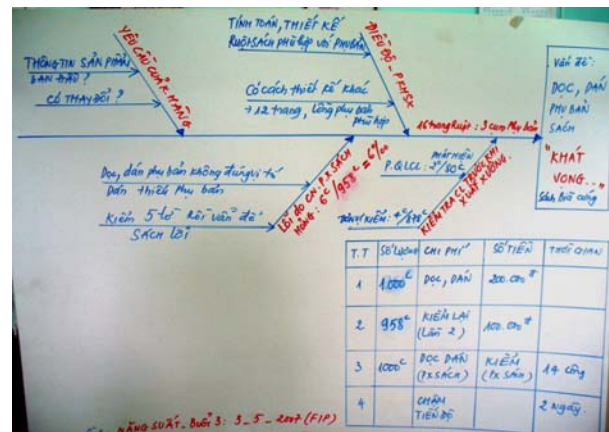
As well as its general printing business, Tien Bo is responsible for producing the Viet Nam Economic Times. This is a glossy, up market, monthly business magazine. It uses high quality inks and papers, which means that the cost to the company of a high defect rate on this particular order would be significant.

FIP recommendations

The FIP expert recommended that the Factory Improvement Team should conduct an exercise to evaluate and analyse the problem and come up with recommendations resolution. In particular, the FIP expert suggested that they put into practice some of the tools and techniques that they had learned in the FIP Quality and Productivity modules and apply them to this problem.

Actions taken by the factory

The first step taken by the Factory Improvement Team was to analyse the root cause(s) of the defects using fishbone analysis (Ishikawa Diagram), a tool used to identify and list all the factors that are impacting upon a particular problem.



This technique helped the Factory Improvement Team to understand the scope and scale of the problem. Fishbone analysis captures and collates all the different perspectives that relate to the issue at hand.

At Tien Bo, the FIT has 20 members including core members plus others who participate, as and when their knowledge / skills / experience are required. Fishbone analysis is an ideal tool when the FIT comprises people from different backgrounds or professional disciplines. Everyone is able to bring their perspective and experience to the table and

the team is better informed of the issues and the Ishikawa diagram is a more comprehensive analysis.

Without this kind of analysis there would be a danger that the FIT would move into “fix it” mode before they really understand the scope or scale of the problem. Which can mean that the real root cause may be missed and the problem will remain.

The Factory Improvement Team decided to apply their investigation to one specific regular order to establish the importance of each root cause in the production cycle. It was decided to examine the Vietnam Economic Times production run. This line was chosen for two reasons a) it uses high value raw materials and b) an initial investigation had established that the end of line defect rate for this production run was 43% above the norm (11.8% compared to the norm of 6.7% - which itself is rather high).

In this context, the fishbone analysis identifies the causes that create the defects by assessing as many components / sub components of the causes as can be identified by the team. The team evaluated these causes and their component parts initially under the broad headings of Labour, Production Processes, Machines and Materials. They then used it to delve deeper into the problems as the picture shows.

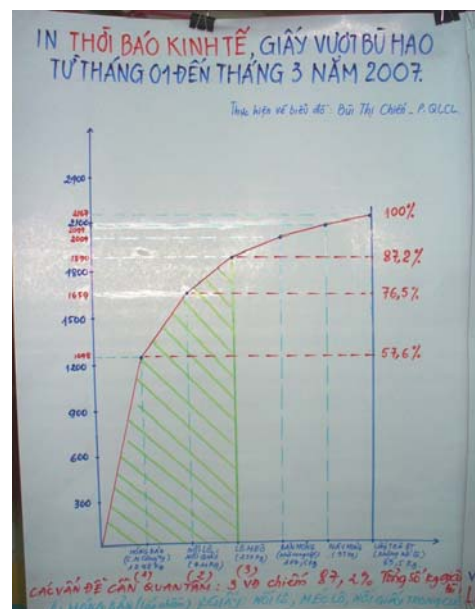
By undertaking the fishbone analysis the Factory Improvement Team was able to identify all the root causes and types of problems that resulted in the end of line defects.

The team also used the Pareto principle and developed Pareto charts to commence the evaluation of the issues identified using the fishbone analysis, with a view to understanding their relative importance and to reducing them. The philosophy of the Pareto principle is that 20% of the causes can result in 80% of the defects or 20% of the defect types can account for 80% of defective products;

Pareto charts are useful when:

- Analysing data about the frequency of problems or causes in a process;
- There are many problems or causes and you want to focus on the most significant;
- Analysing broad causes by looking at their specific components.
- Communicating with others about your data.

In addition to using these tools to identify and evaluate the issues, the workers commenced checking the defects and their impact. The first step was to physically check the paper *before* it entered the production line – this is a critical step that had not been done before. It was also decided that the workers on the line would check for and evaluate defects throughout the production process, monitoring not only the defect and cause of the defect, but also exactly when during the production process the defect occurred. In this way they could obtain a clear understanding of the cause of each defect and would know how to rectify the problem that was causing each defect.



The results indicated that the primary causes for concern were:

- Paper;
- Glue not sticking properly;
- Empty pages being inserted during both the printing and binding processes;
- Incorrect colour matching;
- Errors in design and set up; and
- Non-conformance with procedures.

Impact of the change

As a result of taking action the company has a much greater understanding of the quality issues and their impact on performance and as achieved the following results:

- The defect rate for the first 9 months of 2007 has reduced by 23% in comparison with the same period for 2006;
- The defect rate for the third quarter of the year is much lower than the first quarter and has reduced by 39%;
- There is a much greater awareness of the importance of quality in strengthening the brand name and becoming more competitive;
- The company are applying motivational measures to encourage the staff to be even more effective in improving product quality;
- The application of a bonus system relating to quality has resulted in an increase in quality and payments of around 4.2 million VND to workers by the end of September 2007;

- More than 60 employees have been involved in quality training and workshops.

The company are confident that the results demonstrate the effectiveness of the Factory Improvement Programme and its experts.