

Better Planning Raises Efficiency Production Control at Nguyen Hoang

Nguyen Hoang Exim Co was established in 1992 as a private company, located in Hung Yen Province in the North of Vietnam. The company primarily produces work wear and some ladies wear for export. The factory also has its own well known brand of children's clothes for the domestic market, Kico Clothing. Employing around 500 workers, the majority of the factory's products are exported to the EU (in particular Sweden and Denmark) and the USA.



Prior to joining the Factory Improvement Programme (FIP), management considered raising quality and increasing international competitiveness as their major concerns. They hoped that taking part in FIP would help them address these issues. They were also particularly interested by Modules 1 (Workplace Cooperation) and 7 (Workplace Relations).

Most of the management have been with the factory since the beginning and have developed as the factory develops. While this can be positive there is also a danger of management continuing to implement practices they have always known across the factory as it grows. Most of the key managers run their departments based on their own experience. They rarely analyse for decision making the data that is collected.

INITIAL SITUATION

Management was concerned about two areas of production planning and implementation. Prior to signing a contract with a customer the technical department analyses the sample provided by the customer and produces a test product for approval. This process is also used to develop the productivity norms, specifically the time and machines required for each order. Once an order has been approved the technical information is passed to the workshop. However, the production lines were often failing to meet the norms, particularly in the early stages of the order production.

In addition, for every new order the production line has to be designed to ensure the most efficient completion of the order and the optimal utilisation of resources, both people and machines. The design of the line in Nguyen Hoang company was taking much longer than comparative industry norms, resulting in lower relative levels of productivity and resource utilisation.

The FIP team held a short training session on production planning and methodologies to evaluate problems in the factory. This helped the Factory Improvement Team, made up of workers and managers, identify the root causes of various problems. The issues that were identified included:

- The production of new product was based on a sample can greatly depend on the experience of the technicians during the development of the sample rather than the simple specification of the equipment and the production process. This experience was not being shared with production teams and as a result the production lines were failing to meet norms, particularly in the early stages of the order production;
- Inefficient communication between the technical department and other sections such as the planning department, responsible for procurement of resources required for production, meant that there was no guarantee

that the correct buttons, threads and needles would be available in the right quantities;

- Technical specifications were unclear, inaccurate or incomplete, resulting, for example, in workers using the wrong needle size and making common mistakes;
- Unclear technical documentation was used as the basis for designing the production lines meaning lines were not efficient and not able to meet the production norms;
- Line leaders designed production lines based on their own ideas and experience without considering input and competence of the workers. As such, there were often differences in productivity between production lines producing for the same order;
- The production targets were often different from the actual capacity available within the lines. In other words, the volume of production required to meet the targets could not always be met by the line as the technical department did not always know what machines a particular line had;
- An imbalance between workstations in the lines was creating bottlenecks of work in progress, slowing production lines down through poor line balancing.

RECOMMENDATIONS BY THE FIP TEAM

The FIP team's visit and the training session highlighted these inconsistencies, listed above, in the production planning process. As such, the expert recommended the following:

- A new format of 'new product production plan' needed to be developed;
- The technical department should provide much more detailed measurements and descriptions of the production processes to line supervisors;
- The production process descriptions should specify the specific resources and materials to be used, covering items like buttons, threads and needle size;
- The technicians responsible for producing samples need to spend more time with line supervisors passing on their experiences in making each sample;
- The technical department should provide the planning department with detailed resource requirements for procurement;

- The planning department should ensure that the inventory of available resources matches the resources required
- The warehouse should be able to control the number of needles of each size in stock and in sewing lines to ensure no work stoppage occurs due to lack of needles.

ACTIONS TAKEN BY FACTORY

The Factory Improvement Team worked with the line supervisors, technical department and the planning department to clarify precisely what the new product planning process should entail, what should be included in the technical documentation and how it should be presented.

The factory has now enhanced the procurement and inventory management, through the improved technical documents and improved communication, so that the specified resources will be available when required. The team also introduced a feedback system so that during the initial production period, if there are any issues with needles or other resources, the problem can be evaluated and acted upon quickly by the supervisors and technical and planning departments.

Production planning is still the responsibility of the technical department, which is the keeper of all the data requirements for each order and continues to control the 'master copy' of the production plan. However, a new local computer network has been installed that allows all departments of the factory to easily access the most up-to-date version of the plan and the technical documentation.

A new line layout form has been developed. There is now much more involvement in line layout design by the workers affected. Once the production plan has been developed, the line is now designed by the workers and supervisors themselves.

Defects or errors are now also being analysed by individual workers and not just by the line supervisors or QC staff. This allows the supervisors to provide on the job training or support promptly.

A new log book was designed to control the details of needles in stock, checked in and checked out by size. This log book is checked every day to ensure the availability of the needles in stock.

The Factory Improvement Team also introduced two new 'rules':

- In the case where some production lines take five days or more to reach only 65%-80% of the expected norm, but others reach 90% within three days, the good lines now share their experience with the less efficient lines. If the problem persists then the technical department is required to provide additional support.
- If after three days all production lines are failing to achieve the norm or higher than the norm, then the technical department has to revise and reissue its documentation.

With the Vice Director of the company serving as leader of the Factory Improvement Team, the recommendations and resulting changes have been implemented quite quickly.

IMPACT OF CHANGES

Prior to the introduction of the new order production planning process the Vice Director estimated that each line was shut down for approximately 2 days prior to commencing production. This was done so that machines could be rearranged and preparations could be made for each new order.

Improving communication and involving all of the groups responsible for producing the sample, the order and procurement is both sensible and has resulted in dramatic savings in downtime / increases in resource utilisation. Under the new processes, the lines are shut down for 1 day or less.

The following table highlights the impact of that change.

		BEFORE	AFTER
A	No of Lines	12	12
B	No of Changes Per Year	16	16
C	No of People per Line	40	40
D	No of Days Stopped per Change	2	1
Total Stoppage Days = A x B x C x D		15,360	7,680

This represents a **reduction** in time wasted due to new order production planning and implementation of **50%** and an **increase** in (human) resource **utilisation** of approximately **6.5%**. (Measured as the 7,680 'man' days saved in the table above as a percentage of total number of days worked by all workers in the factory).

Prior to the improvements made by the Factory Improvement Team each line would (on average) produce 350 units per shift. After the improvements (for the same product) each line was producing an average of 480 units per shift. This is a very impressive **37% increase in productivity**.