Human resources at the non-iron metal foundry

S. Borkowski
Division of Production Engineering, Department of Management, Częstochowa University of Technology, Armii Krajowej 19B, 42-200 Częstochowa, Poland
*Corresponding author. E-mail address: bork@zim.pcz.pl

Received 02.07.2007; accepted in revised form 09.07.2007

Abstract

The work refers to estimation of the supervisors at the foundry based on the regulation 4-E and 1-P applied at the Toyota productive system. The examinations showed that the supervisors were positively estimated by the workers.

Keywords: Casting, Workers/employees, Management, Estimation, Regulation 4-E and 1-P.

1. The profile of the subject and the object of the investigation

An independent foundry manufacturing non-iron metal articles in the moulding technology is the object of the investigation. Thirty people, excluding the supervisors, foremen and master craftsmen, have been involved in the productive process (including the Chemical Laboratory and the Quality Control Department). The composition and structure of the productive staff and estimation of the supervisors are the subject of the investigation. Every single supervisor was examined. The results (fig. 1) show that women determine 1/3 of the total amount of the employed workers.

Analysis of the structure of education (fig. 2a) suggests that highly educated employees determine quite a large percentage of the productive workers (26.67%).

a)

Fig. 1. Percentage of men and women among the productive staff

Fig. 2a. Structure of education among productive staff
Equal percentage amount among the male productive workers with their high or technical education suggests that the owners of the foundry are utilizing a high rate of unemployment in the region. Obviously such a structure of employment guarantees similar effects and results. One highly educated woman (fig. 2c) has been employed at the Quality Control Department. Another asset of the modern enterprise, apart from the highly educated staff, is the age of the employees (fig. 3).

The highest percentage, that is 36.67% (fig. 3a), is determined by the employees in their 30s-40s. People at the age of 50-55 determine 13.33%. There is a significant amount of highly educated young employees in the company. Such a structure guarantees a combination of experience with a tendency to put changes, improvement of processes (one can say – with the dissatisfaction with the existing processes).

As far as male productive workers are concerned 35% is determined by the men at the age of 30-40 years old (fig. 3b). Among women 20% (fig. 3c) is determined by young female workers up to 30 years old.

Stabilization of the staff is an essential element of a high repeatability of the results. Considering the procedure of employment one can easily notice that 66.67% (fig. 4a) of all workers have been employed according to the ordinary procedure, i.e for example basing on an offer in a newspaper or magazine. Only 6.67% of the responders said that the current employer gave better money than their previous one.
65% of male workers (fig. 4b) have been engaged ordinarily. Other 35% of men have been employed after relegation caused either by a liquidation of the previous workplace, by difficulties with getting to work or by the work divided into three shifts. Both groups did not give any financial requirements for their employer. Women (fig. 4c), however, demanded some defined requirements. These were only two women who were employed at the Quality Control Department afterwards.

2. Estimation of supervisors by the productive workers

The supervisors were men. The method 4-E + 1-E, used to describe the supervisory team in Toyota company, was applied here [3]. The results were as follows (table 1).

Table 1
Results of estimation of the supervisors

<table>
<thead>
<tr>
<th>Mark</th>
<th>Feature of a supervisor</th>
<th>% of responds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>1-E</td>
<td>He/She is enthusiastic all day long</td>
<td>50</td>
</tr>
<tr>
<td>2-E</td>
<td>He/She is able to push others to work</td>
<td>77</td>
</tr>
<tr>
<td>3-E</td>
<td>He/She makes decisions quickly</td>
<td>80</td>
</tr>
<tr>
<td>4-E</td>
<td>He/She knows how to make decisions and always tends to fulfills goals</td>
<td>90</td>
</tr>
<tr>
<td>1-P</td>
<td>He/She is interested in their co-workers’ success</td>
<td>47</td>
</tr>
</tbody>
</table>

The structure of estimation (fig. 5) shows that in case of “He/She knows how to make decisions and tends to fulfill goals” they have some methods referred to various kinds of decisions – the decisions of their bosses as well as their own ones.

The last feature referred to the supervisors, that is “He/She is interested in their co-workers’ success” was criticized. 53% of the employees did not notice their supervisors cared about their success.

3. Causations of the estimation referred to the supervisors

Differential estimation of the supervisors given by their employees forced to study the problem. The structure of estimation in relation to the sex of the workers was presented in figure 6.

![Fig. 5. The structure of estimation referred to the supervisors](image-url)

As it results from the collected outcome data a so-called solidarity, in the case connected with the sex, has not been observed within the company. In three cases the male workers estimated their male supervisors better than the female workers. In two cases more affirmative features of the supervisors were noticed by women.

4. Conclusions

The method 4-E + 1-P, which is used to form the supervisory team, has been used here to estimate the supervisors [1, 2]. The 4 - E means: 1-E – energy, 2 – E – energize, 3 - E – Edg, 4 – E – execute and 1 - P – passion. The obtained results show that the 4 - E was estimated best. It means the supervisors are efficient because of the goals they fulfill. The goals of the analyzed company are: costs, quality and time the order is accomplished. Feature 3 – bravery to make decisions shows great responsibility for the success of both supervisors and the productive workers. It is them who materialize the decisions controlled by the supervisors. There is a specific dependence between the workers.
and the processes. Their improvement is made indirectly at the workstands – gemba Kaizen [3]. When the supervisors are involved in problems' solution the time of their solution is much shortened. It also tightens the bonds between the analyzed groups of workers. The productive workers are learning to solve problems so they will be able to solve problems themselves in the future. The second E means the way to create a self-learning organization [4]. Casting is a special and dangerous process and quick decision making does not mean leader abilities of the supervisors. The method 3-E is fulfilled, mostly subconsciously, in 80%. Ability to reach goals (4-E) was highly estimated (90%). People with passion (1-P) not only care about their success and reach the goals. They are also happy for their employees' development and excited about the work of their staff. That feature was negatively estimated though. The obtained results show the highly educated staff management is simplified - first of all decisions can be implemented easily.

References