



## IMPROVEMENTS BY EMPLOYEE MOTIVATION IN THE MANUFACTURE OF NUCLEAR FUEL ASSEMBLIES FOR LWRs

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### Abstract

Nuclear fuel assemblies are manufactured on a very high technical level and automation. However there is still a need for more improvement. One of the most important ways is employees motivation, because improvements lives of the ideas, impulses, initiatives and commitments of its employees. It can be realized by the employee himself or a group.

Three ways of improvement by employees are mainly implemented at ANF :

- **ANF's 3i - program**, based on the standard implementation within Siemens, is the first and an important strategy to improve processes, products and costs. It is to involve all employees and make use of the full potential for improvement .The individual employee or a group make a suggestion and receive a commendation depending on the benefits .
- **Work groups** with a high level of responsibility are the second part. The groups mainly organize their work , working time and improvements by themselves . They help eachother in job training, are very flexible and able to do also most of the maintenance work.
- **CIP – groups ( C ontinuous I mprovement P rocess)**, based on the philosophy of KAIZEN is the third strategy. These groups come together to improve all processes in the manufacturing area, also the administration or logistical processes at ANF. CIP – groups are implemented as so called long-term groups, the members are from different levels and departments.

By comparing the different ways in order to achieve manufacturing improvements, employees motivation is one of the most important and cheapest part and will increase in significance in future.

## 1. INTRODUCTION

A company lives on the ideas, the impulses, the initiative and the commitment of its employees. Nuclear fuel assemblies are manufactured on a very high technical level and automation. However, there is still a need for more improvement.

One of the most important ways is employees motivation, because improvements lives of the ideas, impulses, initiatives and commitments of its employees.The managers are the most important partners of the employees in the improvement process. The participance of the groups is spontaneous and voluntarily. Participants who want not to work with a group may not have disadvantages!

## 2. DESCRIPTION OF SCENARIO SELECTION PROCEDURES

### 2.1 Employees initiatives

For a more effective and sensitive way to motivate employees for making improvements, ANF introduce in 1995 the 3i-program based on the standard implementation within Siemens. The 3I-program is made of Ideas+Impulses+Initiatives.

Fig. 1 shows what Employees initiatives are.

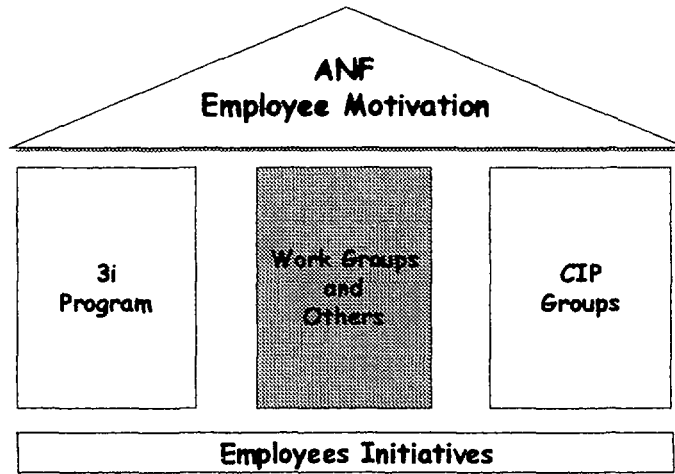


FIG. 1. ANF employee motivation

### 2.1.1. 3i-program

Based on the standard implementation within Siemens, the 3i-program at ANF is the most important part to improve processes, products and costs by the ideas of its employees. It is to involve all employees and make use of the full potential for improvement. The individual employee make a suggestion and receive a commendation depending on the benefits. The managers are the most important partners of the employees in the 3i-process, the essential features of successful management are shown in Fig. 2.

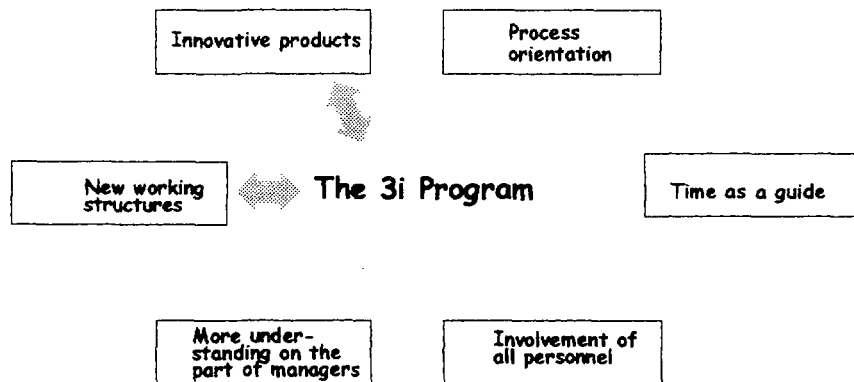


FIG. 2. The 3i-program implements the essential features of successful management

#### 2.1.1.1. Roles in the 3I-program

Not only the employees of ANF are playing an important role in the 3i-program, also the role of management is important. The management and the manager themselves will be responsible for the success of the program as a partner and a coach of the employees to realize the ideas of improvement.

*Employees:* The employees have (Fig. 3):

- to bring in engagement for the improvement of products, processes and status as well as for innovations,
- to be creative for solving customer and internal problems,
- to bring in informations and specific competence.

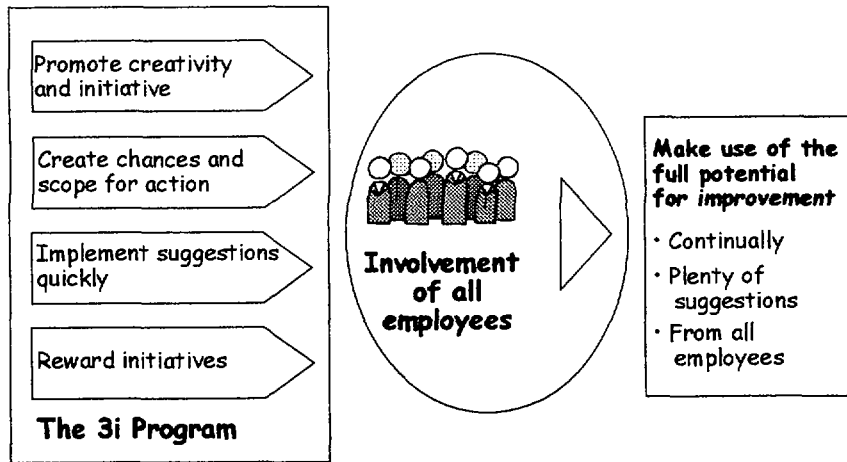


FIG. 3. The new 3I-program is counting on all employees

*Management, managers:*

The management and the managers have to speed up the improvement process at ANF (Fig. 4).

The Management has:

- to give promotion for the employees
- to supply them with necessary resources
- to control the success
- to reward the suggestion by single employee or groups

The Manager has:

- to make active promotion
- to give the employees or groups
  - free space (time, money...)
  - active support
  - awards (3i-program)
  - to cowork with the group
  - to control the realization

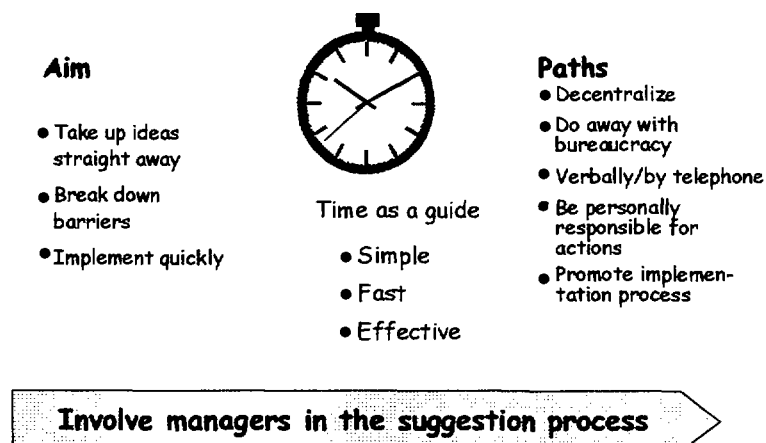


FIG. 4. The improvement process is speeded up

### 2.1.1.2. Improvement by suggestion

Especially the improvement by suggestion is an important part of the 3i-program. An improvement by suggestion showing

- ◆ „what“ should be improved,
- ◆ „how“ it should be improved
- and**
- ◆ that the realization could be an improvement
  - for our customers,
  - for the company,
  - for our employees or
  - the company's influence on environmental protection.

At last the 3i-program leads to quick decisions for improvements by suggestions, if management take over their role (Fig. 5)

- as partners for every person who makes suggestions especially in :
  - being open for discussions
  - Offering advice
  - Helping to implement
  - Assessing
  - Rewarding
- and as coaches for :
  - Creating freedom of action
  - Informing
  - Prompting
  - Supporting
  - "Publishing"
  - Spreading good ideas

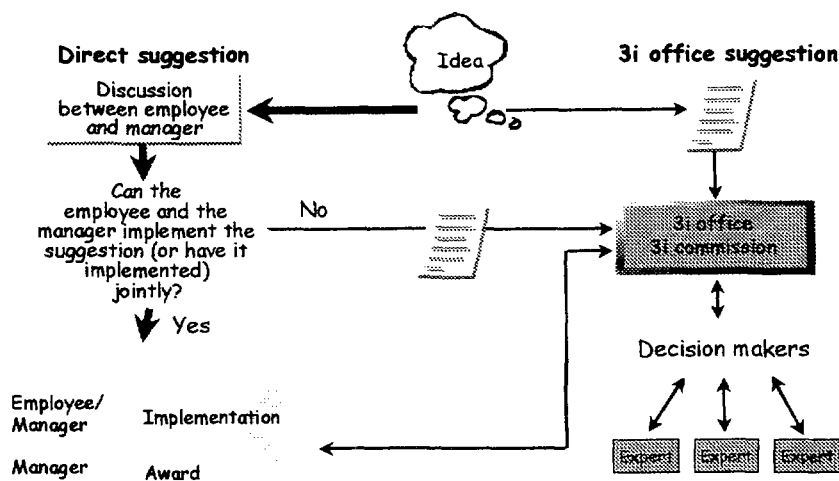


FIG. 5. 3I-program stimulates quick decisions

### 2.1.2. *Work groups*

Work groups with a high level of responsibility are the second part. The groups mainly organize their work, working time and improvements by themselves. They help each other in job training, are very flexible and able to do also most of the maintenance work.

Basic features of a Work group are:

- A Work group is a team of 3 to 10 persons
- The group has a common task
- The group organizes a lot of work and working time by themselves
- The members of the group train each other

Benefits of the Work groups are:

- Employee identification with process/machine
- Less work for management
- Less work for service groups
- Increase of employee flexibility
- People are well informed about the company goals

The specific features of the Work group at ANF are:

- About 90% of the production employees are organized in Work groups
- The groups know their goals on a weekly/monthly/yearly basis
- The groups also know the goals of others
- The groups organize their working and machine running time
- The most groups are able to do the maintenance
- The group members have a strong identification with the equipment.

### 2.1.3. *CIP – groups*

**CIP – groups** ( Continuous Improvement Process), based on the philosophy of KAIZEN is the third part. These groups come together to improve all processes in the manufacturing area, also the administration or logistical processes at ANF. CIP – groups are implemented as so called long-term groups, the members are from different levels and departments.

Working in a CIP- group:

#### ❖ **Working time ?**

- within the normal work time without hierarchical structure, in several hours or in days

#### ❖ **Written things?**

- The problem has to be written in certain protocols during all the time, to determine the procedure and control the costs

#### ❖ **Support?**

- The group can have support by the coordinator of the initiative groups

#### ❖ **Costs?**

- If the costs of the group are higher than the costs they have planned, the responsible manager has to be informed

❖ **Finish the work**

- The group will be finished by a presentation to the management where they will show the solution of the improvement. This will also contain a plan for realization as well as for the expected costs.

❖ **Awards?**

- After the group has presented the solution of the problem to the management, they should handle it as a 3i-improvement idea and give an award to the group

We need CIP Groups because of:

- Thinking/talking of the process brings ideas
- We have a lot of meetings, but the wrong people talk to each other
- The operator gets a tool to optimize his process
- Enable the employees to quickly influence their process (e.g. administration, production, inspection,...)

Fig. 6 shows basic principles of work of CIP Groups at ANF.

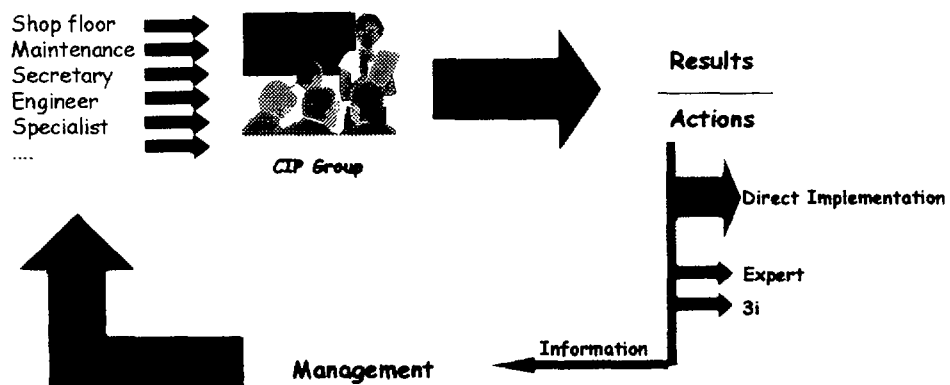


FIG. 6. Basic principles of work of CIP Groups at ANF

The improvements by suggestions, work groups and CIP-groups at ANF leads to cost savings of approximately 1.8 Mio DM in FY 98/99. Some examples for that successful employee motivation at ANF in FY 98/99 are shown below:

- ANF had 1.4 ideas per employee and savings of 1.18 Mio. DM
- Just by employee motivation the cost for protecting clothes have been reduced by more than 10%
- The yields increased significantly
- Production cost decreased by about 10% (about 3% because of employee motivation).