

Volkswagen Tries Group Assembly in German Work Humanization Study; Criticizes Use in Mass Production

by Georg Kugland

At the Volkswagen plant in Salzgitter, the Federal Republic of Germany, a new form of work organization, semi-autonomous group assembly, was the subject of experimentation from April 1975 to December 1977. Although the project was dramatically changed when the Metalworkers Union withdrew its support, it did finally go on to completion, and several conclusions can now be drawn.

The project was launched at the Salzgitter engine plant, which employs upwards of 5,400 people, in response to the popular interest shown at that time in work humanization experiments at the Volvo factory in Kalmar, Sweden.

Nature of the project

What was the nature of the project and its goal?

The project aimed to compare the ergonomics and the psychological and economic aspects of three different work structures: continuously moving conveyor belts, intermittent transfer assembly lines, and semi-autonomous group assembly.

The Volkswagen project was financed by the Federal German Ministry of Research and Technology's "humanization of work" program (see WWR, Dec. 1979) at the cost of 12 million Deutschmarks and conducted by a task force that included ergonomics experts from the Technical University of Darmstadt, industrial psychologists from the Federal Technical University of Zurich, and representatives of VW. The ergonomics experts were to concern themselves with ergonomic investigations and the industrial psychologists with the evaluation of the subjectively perceived work situation. The role of Volkswagen was to provide the material and personnel and to evaluate semi-autonomous group assembly from the point of view of costs.

Because the project was planned as a "test track" experiment outside the normal operation of the firm, it would require the cooperation of all

parties. From the very beginning, the works council was involved, as was the Metalworkers Union, which had expressed its willingness to participate in the experiment.

Some 260 workers out of 450 employed in the engines section volunteered to take part in the project. Fifty were selected out of this number to be deployed in all three work structures.

Participants were expected to answer questionnaires every three to four months and were tested periodically to evaluate stress and work load.

The ergonomics experts and psychologists took part in every aspect of the experiment: ergonomic job design, training programs for employees, and the development and introduction of new forms of work organization. The object was to organize a form of group assembly with

the greatest possible degree of autonomy.

The following parameters were set for the groups involved:

- One hundred engines per day would be produced.
- Each group would assemble its own materials, complete the assembly of each engine, test run the engine, and check and order tasks.
- All provisions of the wage agreement and all legal requirements regarding wages would be observed.

A good start

The development of the group assembly got off to a good start. Two mutually independent assembly groups per shift were set up, each having four assembly islands, and plans were made to transfer to the group a step-by-step extension of tasks, including preassembly, test running, and checking and ordering of tasks. Employees were prepared for the new type of assembly by industrial psychologists, who helped them to develop the abilities and skills needed for the complete assembly of an engine, and taught them how to organize the free periods granted on a semi-autonomous basis.

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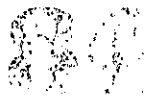
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Employees in group assembly were encouraged to participate in decisions taken by the group.

It was at this point that serious problems arose.

Company representatives and works council representatives were able to reach agreement on the setting of target quantities and on the preconditions for the extension of tasks. But there were profound differences of opinion between VW representatives and works council representatives (including, of course,

Metalworkers representatives) in regard to the degree of semi-autonomy expected in group assembly.

Another problem revolved about the matter of remuneration. The representatives of management were prepared to pay in accordance with the existing wages agreement, but representatives of the works council demanded more money for the additional operations to be performed in the future.

In the course of a general discussion of these problems, representatives of the Metalworkers Union declared that, in their opinion, the Company Constitution Act of 1972 granted codetermination and participation rights to the works council alone and that these could not be legally vested in the semi-autonomous groups. They also maintained that the experiment could not be conducted on a "test track" but only within the framework of the company's customary mode of operation. Therefore, they decided to withdraw their support so far as semi-autonomous groups were concerned.

As a result, the special advisory committees set up for the project, which included representatives of the works council, were dissolved. For the remainder of the project, the new work structure was treated as though it were an ordinary part of the Volkswagen organization, under normal company supervision.

Group assembly was also altered in the sense that members of the group had less opportunity to exercise self-regulation, one of the main objectives of the experiment. At the end of 1977, the experiment was completed according to schedule.

The results of the ergonomic and social-scientific investigations have been summarized by the company as follows:

- All three of the work structures investigated can be regarded as tolerable in regard to load and stress. The most stable stress situation was demonstrated to be in the semi-autonomous work group, even though the work loads were higher.

- The involvement of the research institutes resulted in useful suggestions for the ergonomic design of workplaces, such as matching work height to the work process and individual physical size, the physiologically favorable layout of a sitting or standing workplace, and the reduc-

tion of static holding work or of one-sided dynamic muscular activity.

- Work satisfaction is influenced less by the work structure than by the individual work situation, including such considerations as working conditions, management attitudes, relations with colleagues, wages linked to the nature of jobs, regard shown within the company for work performed, the labor market situation, and development and learning possibilities in the work process.

- Employee training leads in the majority of employees to higher capability.

Cost evaluation

The experiment made it abundantly clear, the company believes, that the introduction of new work structures, such as group assembly, depends on the volume of production. Mass production sets limits to group work.

- In mass production, the costs of complex, highly mechanized solutions, such as the conventional conveyor belt, are more favorable than those of group work structures.

- Group work, with its long cycle times, requires highly qualified workers.

- The possibility of improving quality and slightly reducing absenteeism and personnel turnover cannot compensate for the additional costs incurred in group assembly. In the company's opinion, group work appears to be an alternative structure adapted to small-volume production only.

One thing has definitely emerged from this project: any attempt to create new work structures through the setting up of semi-autonomous groups in the factories of the Federal Republic of Germany will have to consider and respond to the resistance of the German trade unions to current experiments, to the obstacles the unions feel are implicit in existing legislation, and to the conviction on the part of management that group assembly is simply not economical for large-scale mass production.

The author, Georg Kugland, is senior group executive manager of labor relations and chairman of the wages and salaries negotiating committee of Volkswagenwerk AG in the Federal Republic of Germany.

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