

BroadVoice

Broadening the spectrum
of employee voice
in workplace
innovation

National report - Sweden

Company case study The Mine

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Co-funded by the
European Union

The Mine

1. Company characteristics

The Mine is a large Swedish mining company with roots in northern Sweden. The metals of the mine are zinc, copper, nickel and lead. Other metals that The Mine produces include gold and silver. The North mine is a copper mine with silver and gold located about 15 kilometres from a small town in northern Sweden with 8,000 inhabitants. The mine is Scandinavia's largest open pit mine and one of Europe's largest copper mines. The North mine has about 900 employees and is the largest private employer in the municipality.

The reason why the North mine has been chosen as a study object is that the project contains major challenges when it comes to gaining social acceptance among the employees, it is about replacing about 250 truck drivers with autonomous trucks. In addition to the truck drivers, the staff who control and plan the current manual traffic are affected. Today, 17 trucks have been converted to autonomous out of a total of about 45 trucks. The others will gradually be replaced with new ones over the next 10 years. It is thus a matter of mixed traffic with autonomous and manual control, which places very high demands on the safety systems that exist. The manual vehicles in the production zone must be equipped with special communication equipment (transponders) and have specially trained personnel.

2. Strong trade unions

Of the 900 employees, just over 600 are collective employees and members of IF Metall's mining club number 136. The degree of affiliation to IF Metall is between 90 and 95 percent, which is very high even in a Swedish context. The other trade union affected by the transition is Unionen, which has about 100 members, 15 of whom are affected by the transition itself.

IF Metall's union club in the North mine has a board with a full-time chairman, a vice chairman and two chief safety representatives. We have interviewed the chairman, who has worked in the mine since 2006 and as union chairman since 2021.

Unionen has a board that is responsible for all Swedish mines in the mine company. The mine in the North mine has three representatives on that board. We have interviewed one of the board members who has had a special responsibility to follow the project in question. The interviewee has worked in the company since 2005 and in parallel with her union assignment, she has worked as a training coordinator in projects.

For union coordination between the various unions and mines within the mine company, there are two bodies, The Mining Trade Union Collaboration (FSG), which coordinates the company's Swedish operations, and for the coordination of activities abroad, there is the European Workers Council (EWC), which is actually a regulation of forms of cooperation on the initiative of the EU. Representatives of employers also participate in the EWC meetings. At the local level, there is the Mine Union Council that coordinate the unions within the North mine. In addition to these groups, there are meetings for reconciliation directly between the unions and the company. For IF Metall, these meetings are regular and for Unionen, they call when necessary.

3. A project for increased safety

The project is called Autonomous Haulage System (AHS) for Open-Pit Automation. The company describes the project primarily as a safety project, where it is a matter of moving personnel from the hazardous production environment to safer workplaces located outside the production zone. The system will lead to increased productivity by requiring fewer trucks to handle the same production volume. The trucks will not go faster than the current ones, but they will run at the same speed all the time, 24/7, and with reduced stops and set-up times. IF Metall shares the description that it is a work environment project and emphasizes the importance of getting away from the whole-body vibrations that trucks driving entails. Unionen believes that the automation project is essentially a project for increased productivity, but with large elements of improved working environment. Many of Unionen's members work in production and are exposed to the same workload as IF Metall's members.

Before choosing the system, an inventory was made of which systems are available on the market, which were then evaluated from commercial and technical aspects. Technology is developing so fast and it was considered important to have a large supplier that will be present on the market even if the technology changes. The project manager believes that the company has such knowledge of the technology that it can actually change systems in the future if necessary.

Technically, this means that existing trucks are converted to autonomous ones by equipping them with a control system developed by Komatsu and tested in several other mines. Several new work roles are attached to the new system:

- AHS shift supervisor who is a supervisory function for the entire AHS system.
- Pit patrollers who are down in the mine like the extended arm of the central controller. They can change routes if there is any disruption and also take over control of a truck and manually drive it to a workshop if necessary. The truck always goes in the same track, but it can occasionally get off track, then the truck stops and the pit patroller has to step into the truck and manually drive it back into the right position and then let the autonomous system take over again. The pit patroller also assists other machines that need to be in the area. There are three pit patrollers during the day shift and two during the night. The training of a pit patroller takes about 8 weeks.
- Central controllers are those who control the production flow in the mine with the help of an advanced control and planning system. The central controller decides which machines should do what, which excavator should load each truck. They also decide who gets access to the production area. To help the central controller, there is the pit controller who is on site and reports what is happening. The central controller is mainly newly recruited with a university education and organized in the white-collar union, Unionen or SACO (the Swedish Confederation of Professional Associations). Some are further trained operators from the old manual control system. Training of the central controller takes about 12-15 weeks depending on what prior knowledge they have. There are two Central Controllers on site during the day shift and one during the night shift. According to IF Metall's chairman, the final union affiliation has not been fully discussed.
- Dispatcher is an old professional role that controls the manual part of the vehicle fleet. That part will gradually decrease. The dispatcher is currently organized in IF Metall, but the company wants to make them white-collar workers because they also have a supervisory function. However, IF Metall believes that the development of the role of

dispatcher is a natural part of professional development and that they should consequently remain with members of IF Metall. Unionen does not share this view but sees them as its members.

- AHS Trainer that trains new and existing employees on the new system. Extensive training is required for those who will work with the system. To date, about 80 people have been trained. It is not only trucks drivers, but also other machine drivers working in the mining zone together with the autonomous trucks. There are a total of 11 trainers, five who are employed by the mine company and six who come from the system supplier.
- Truck technician is another new professional role that will maintain and service the control system on the trucks, existing workshops are used for ordinary maintenance. There are two technicians per shift and they are employed by the system supplier.

An important part of the project has been training, both training on how the new system works and training in safety behaviour in the autonomous zone. No one is allowed into the autonomous zone without having undergone adequate safety training. Education has thus been the entrance ticket to working in the new system. When the project started, you had to register an interest in training to be part of the new system. There was an initial resistance that gradually diminished as the project's contours became clearer. In the autonomous area, only English language applies for safety reasons, which can be a contributing factor to the negative attitude, people were worried if they would be able to do it.

The project started as a development project in 2021 with a letter of intent, but already in 2018 the trade unions had been informed about the plans to introduce autonomous trucks. During the second half of 2021, the new control room and the training building were built. In 2023, they started installing the hardware and putting the system into operation, at the same time as training the staff. After barely a year in operation, the system worked well enough that responsibility for continued operation could be handed over to regular production. However, there are still problems that need to be solved.

There is no forthcoming threat of redundancy. The staffing for trucks and dispatchers has not decreased significantly during the time due partly to the fact that the company has increased production at the same time and, partly because no new truck drivers are hired since the project was started, any shortage of truck drivers is solved by hiring drivers from staffing companies. Since the project extends over such a long period of time, 10 years, the company does not expect any layoffs of personnel, but it is solved through natural staff turnover and retirements. The project manager believes that the lack of redundancy discussion has been a major reason why it has been relatively easy to gain acceptance for the project from both unions and staff.

4. Acceptance of the change

In order to gain acceptance for the change, a communication plan was formed, and a communicator was hired so that everyone would understand what the project is about and gain confidence in the change. The communicator spent time out in production and informed about the project and its effects. The communication plan was based on a comprehensive risk analysis but evaluated risks and opportunities in different phases of the implementation process. The company summarizes the communication plan in six sentences:

- Management and managers are key
- Resistance or negative reactions to a change should be seen as a sign of a healthy organization
- The importance of a dialogue as a method for success
- Flexible and continuous development
- Transparency and speed
- Questions should be requested and dealt with (strategic listening)

The implementation strategy was based entirely on accepting and using the established structures that existed in the company. At an early stage, managers and supervisors were trained in change management and communication. There were many meetings with the trade unions and participation in many MBL meetings. The project manager believes that the trade unions have been constructive and contributed with relevant issues. There are a number of difficult questions, such as which forms of shift should be applied, where it has been difficult to find consensus. There has also been a discussion about the boundaries between the unions when it comes to the positions in the control room.

Separate meetings were held with the safety representatives where the company explained what the new technology is and how it works. A number of safety representatives participated more actively in the project and took part in the work on risk and safety analyses. It has been important to build confidence in the safety features of the new technology.

During the course of the project, the project management has participated in workplace meetings and informed about the project, and they have had "open house" days when they informed in more relaxed forms and offered hamburgers. Information has also been provided at the mine companies annual safety days where all employees participate.

Another way to make your voice heard is to use the system for deviation reporting. Via their mobile phone, all employees can report if something is not working. The report goes to the manager who will investigate and handle the case, it is a manager's responsibility to give feedback on the reporting.

IF Metall believes that the relatively smooth introduction is due to the fact that the rules of the game in the Swedish model have been followed. There has been some resistance among the members that has gradually softened when it becomes clear that no one will be fired. One success factor is that a working group was created relatively early on in which IF Metall was a part. There, they have been able to raise the members' questions, "instead of 600 members coming with their questions, we channel them into the process via the union". The members expect the union to solve the problem. The union is interested in the company doing well and creating jobs in the future as well.

Unionen emphasizes that there was a good dialogue with the employees right from the start, with workplace meetings where employees were able to make their voices heard. That dialogue has been important in order to eliminate speculation, and to make people feel safe. Unionen claims that they received a lot of information at the beginning of the project, but it has gradually decreased, and their questions has become more in the background. Due to their size, IF Metall has been able to put their questions in the foreground. The representative of Unionen does not feel that they have been run over, but their questions have been forgotten along the way. An exception is risk analysis where they have been involved the whole time.

5. How did it turn out?

The project has been completed and responsibility for continued operation has been handed over to the regular operating organization. The project manager is satisfied that the system is in place and working, but not as satisfied with the production levels. There are still problems and some optimizations remain. According to the project manager, it is natural that there will be problems when you hand over responsibility for the operation to a new organization, the new responsibilities has not had time to settle down, and new problems appear all the time.

The project manager also believes that there has been a more open climate in the workplace that is based more on trust, but there is still some resistance from employees who prefer to work with the old manual technology. The project manager estimates that at present, about 80 percent are interested in working with the new technology, while 20 percent still want to work with the old as before. The old technology will remain for another ten years, albeit to a lesser extent.

A strong contributing factor to the relatively smooth implementation and acceptance has been that the company has not had any redundancies. There have been enough work tasks for everyone to find a new position, either by training to the new technology or training to manage other machines. There is still a need for more truck drivers, but the company does not hire any new ones, when a need arises, truck drivers are hired through a staffing company.

Both IF Metall and Unionen largely share the company's view and emphasize that the project has not led to any layoffs. The employees have been given new work tasks in the new system or have moved on to other tasks within the companies, such as road maintenance, truck maintenance and loading that is still done manually. There will also be a need for the older age groups until they retire

Case study 2 in brief

COMPANY CHARACTERISTICS	Company context A copper mine with about 900 employees that is part of a large international mining company. The Mine is the largest private employer in a municipality with 8,000 inhabitants.
	State of innovation A pure technical innovation with major social implications
INDUSTRIAL RELATIONS	Trade union density rate at the company level Extremely high, 90 to 95%
	Workplace labour representation structure characteristics Advanced with board representation and a full-time union representative paid by the company. European Work Councils' participation on company level.
	Company-level collective bargaining

	Many collective agreements for both wages and cooperation in the company
DIRECT WORKER PARTICIPATION	Direct participation as the subject of organisational tools The project follows the Swedish model of consultation via the unions. As a complement, workplace meetings have been used for a direct dialogue with the employees. Direct participation as a vehicle for workplace innovation <i>Regulation:</i> Initiated by management without a collective agreement <i>Intensity:</i> Occasional dialogues with employees to gather experience and build trust <i>Scope:</i> Mainly trust building <i>Objectives:</i> For management, organisational efficiency and employee trust; for the trade union, safe and attractive work tasks
THE ROLE OF INDUSTRIAL RELATIONS IN DIRECT WORKER PARTICIPATION	Mainly via the trade unions within the framework of the co-determination act. Separate meetings were held with the safety representatives. No collective agreement has been signed for the project. Model of integration b/w direct participation and industrial relations Hybrid (cooperative) model Breadth and depth of participation Participating primarily through union representation with direct participation as a complement to create trust)
DIFFICULTIES	Certain workers' fear of redundancies and lack of trust The hybrid production processes with parallel systems - the traditional model and the new model - interactions and disturbances between them.
IMPACTS	The change has been successfully implemented and will be permanent until the next technological step is taken. Productivity and product quality have increased. Significantly improved safety. Worker trust and engagement have increased during the project
FUTURE PROSPECTS	The technology will be implemented in other mines within the mining company,