

Teamwork in Winter Maintenance

First-Hand Experiences

Airi Hellman and Eeva Nikulainen

When the Finnish National Road Administration (Finnra) was internally divided into administrative and production branches in 1998, it brought great changes on both organizational and operational levels. This internal division clarifies the roles and responsibilities of the branches, intensifies the efficiency of road management, and helps prepare the agency for open competition in public road management scheduled to be implemented starting in January 2001. The creation of winter maintenance teams in the same year was intended to both increase efficiency and decrease the costs of maintenance work. It entailed quite a radical change from the traditional work style (management by supervisors) to self-ruling worker teams. The teams were given contracts for the winter maintenance work, and they decided and planned how best to complete the work to fulfill the quality requirements set by the client—in this case, Finnra.

Since early 1998, the Finnish National Road Administration (Finnra) has operated as an agency divided into two units: Road Administration, a public authority that commissions road maintenance services (“client”), and Production, which provides road management products and services (“contractor”). The new organizational chart is presented in Figure 1. This internal division clarifies the roles and responsibilities of the branches, increases the efficiency of road management

A. Hellman, Finnish National Road Administration, Helsinki Metropolitan Maintenance Contract Area, Turuntie 207, FIN-02740 Espoo, Finland.
E. Nikulainen, Finnish National Road Administration, Export Services, P.O. Box 8, FIN-00521 Helsinki, Finland.

services, and helps prepare the agency for open competition in public road management, scheduled to be implemented starting in January 2001. Work will remain open to competition through 2004.

BACKGROUND

Finnra Production is divided into four operational areas: contracting, consulting, road ferry services, and export services. These areas are made up of contracting units that are awarded contracts for road management work and service in their respective areas. Maintenance contract area bases serve as actual home bases for both personnel and equipment.

Finnra Production operations are based on process and team organization. At the moment, the four kinds of teams are work, support, contract, and leadership. In this paper, I concentrate on the work teams only.

Work teams for winter maintenance were first introduced from October 1998 to April 1999. Although there was no precedent of such work teams in winter maintenance, a team of two drivers had been given their own snow plowing route for the entire winter season in central Finland. These people had been responsible for clearing snow and deicing certain road sections, and they were quite independent in their work.

For the work teams to be operationally possible, certain conditions are necessary. The workers must be highly qualified professionals. Although one of the teamwork concepts is to develop the skills of the team as a whole as well as those of its individual members, the basic profes-

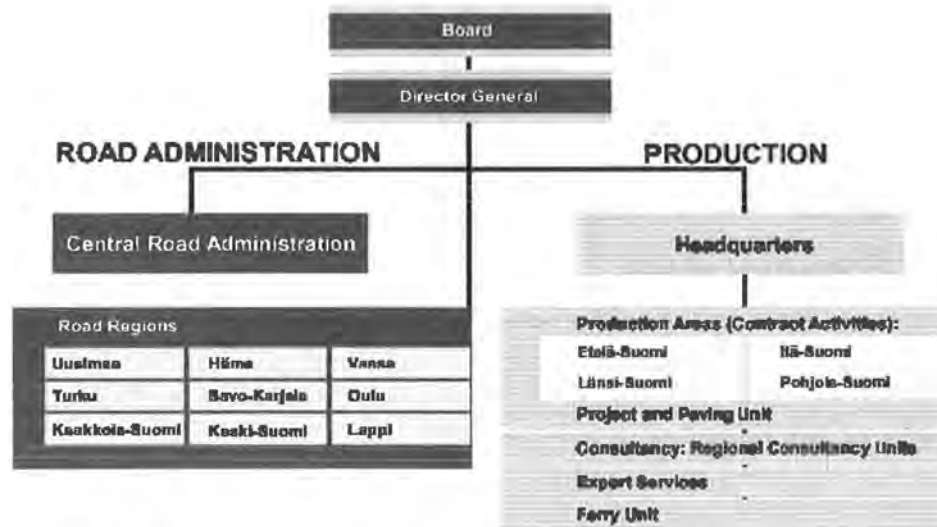


FIGURE 1 Organization chart of the Finnish National Road Administration.

sional competence has to exist. The state-of-the-art vehicle fleet and equipment must be in top condition, and maintenance must be well organized.

Today's drivers are workers skilled in many areas. Team members must have good local knowledge of both geography and traffic. It also helps if they have adequate working experience in their specific maintenance area and familiarity with previous work planning, routing, and output-based costs. It takes 2 to 3 years to train a new recruit with a driver's license to be familiar with all the necessary equipment and working methods in both summer and winter maintenance. Figure 2 is a photo of the interior of a modern SISU truck cab with all the different control devices. The latest addition is the computer, in which the driver inputs information about the work assignment. The data are transferred to the central

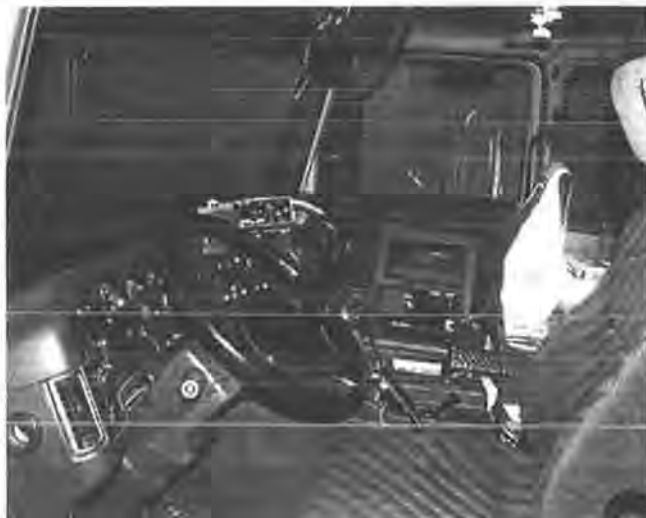


FIGURE 2 Inside a SISU truck cab.

database for use in calculating wages and maintenance costs and for quality reporting.

Without the introduction of the road weather information system with road weather stations and service centers, self-ruling winter maintenance teams would not be possible. Whereas previously the order for starting maintenance operations was given by a supervisor on the basis of his assessment of the weather situation and road conditions, the alarm is now raised by the road weather centers (RWCs), which contact the team leader on duty. The team leader then acts on the information and suggestions received. The operational principle of the road weather information system is presented in Figure 3.

The ultimate purpose of Finnra Production in creating self-ruling worker teams for winter maintenance is to increase efficiency, cut costs, and encourage worker participation in decision making to make work more interesting and meaningful for the workers. In light of the future situation (open competition in road management services), Production needs to streamline its operations. Ultimately, this means that more work is done in less time and by fewer workers than before.

SELF-RULING WORKER TEAMS

In 1998, the decision was made to carry out all winter maintenance work by self-ruling worker teams in all maintenance contract areas. Three different contract models were drawn for the teams to choose from. The differences in these models were based on different ways of calculating remuneration for the contracted work. The basic idea in all of the contract models was to provide the workers with total basic wages, with no paid overtime. Teams chose two of the contract types, and Finnra's wish to have only

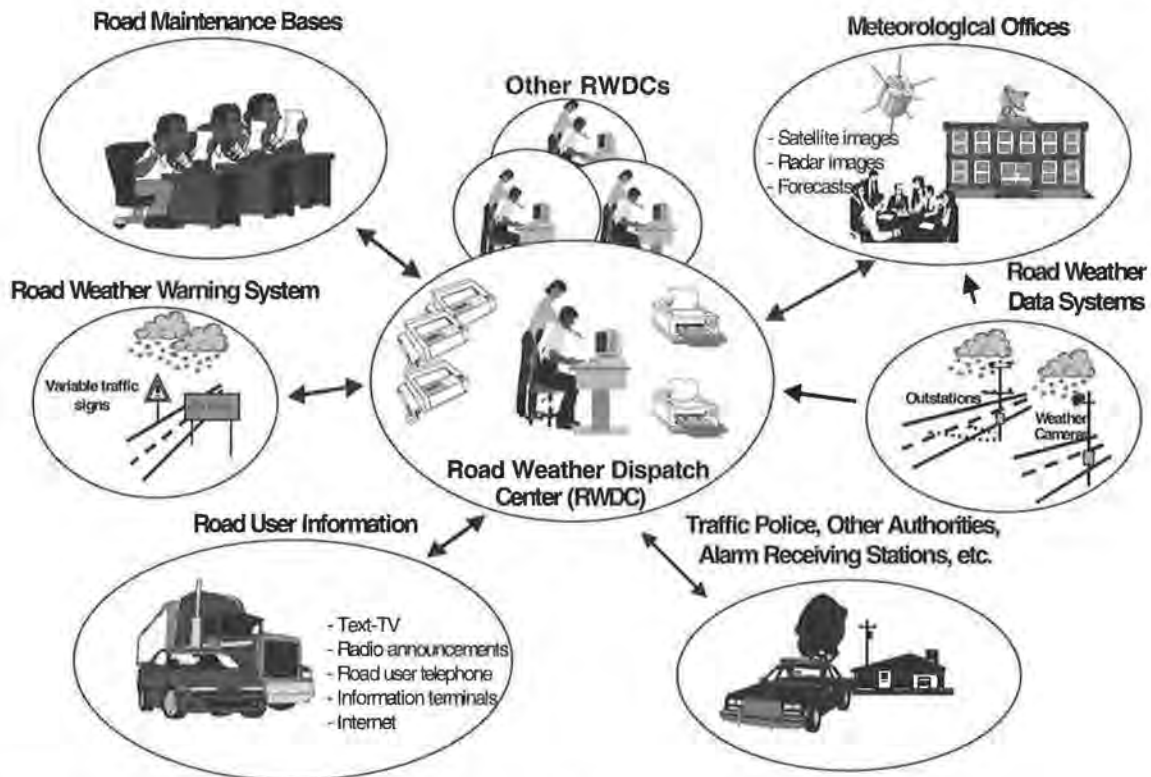


FIGURE 3 Operational principle of the road weather information system.

one kind of contract for all teams did not materialize. The contracts describe the work to be carried out by the teams in their specific maintenance areas. Quality for maintenance work is set by Finnra in the classification of roads and maintenance.

The teams organize their work independently, creating on- and off-duty as well as holiday schedules by themselves. Each team selects a new team leader each week, and the team leader position is rotated among all team members. All members are collectively responsible for the work and its quality. Instead of a maintenance supervisor giving them orders (what to do and when to do it), the teams make decisions themselves based on the information they receive from the RWCs. The RWC duty officer contacts the team leader, who then conveys the alarm to all team members.

The teams also have the right to sell maintenance services outside of Finnra. They can provide services such as sanding, deicing, and plowing to the private sector at agreed-upon prices. However, as yet, the team members have not actively marketed their services.

FIRST-HAND EXPERIENCE

When the self-ruling worker teams were first introduced, from October 1998 to April 1999, there was quite a lot

of opposition. Drivers were suspicious of the new system and its merits. It was very difficult for the drivers to accept the radical change in the organization and the management of their work. The fact that the drivers' average age and working years were relatively high did not make matters any easier. In the end, most of the drivers signed the team contract and participated in the self-ruling worker teams. For instance, in the Helsinki Metropolitan Maintenance Contract Area only 2 of 67 drivers decided not to sign the contract.

The Helsinki Metropolitan Maintenance Contract Area has six self-ruling worker teams for winter maintenance. The number of drivers on each team varies from 6 to 18 depending on the amount of contracted work. Every team chooses its own team leader, and the role of the team leader is rotated among all team members. The system also provides for one "head" team leader for every three teams. The drivers have found the team leader duties very difficult and tiring. Their previous roles as professional drivers—doing only what was assigned to them—have suddenly changed to supervisory responsibilities for personnel, equipment, and work. As a backup, a road engineer is always on duty for technical problems, but the team leader has to take the initiative and give orders to the drivers. The organization of the Helsinki Metropolitan Maintenance Contract Area teams is presented in Figure 4.

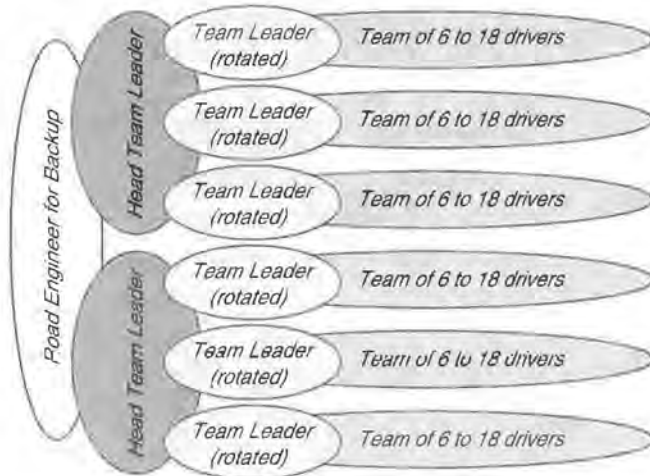


FIGURE 4 Organization of the Helsinki Metropolitan Maintenance Contract Area teams.

During the first contract period, winter weather was harsher than usual. Compared with data from the previous year, the number of alarms increased by 50—from 120 in 1997 to 170 during the contract period. The amounts of sand and salt used prove the same point: 13,000 tons of salt (NaCl) in 1998–1999 compared with 10,500 tons in 1997, and 12,000 tons of sand in 1998–1999 compared with 10,000 tons in 1997. As many as three alarms could sound within 24 h, with no regard as to whether it was a weekend or a holiday. Normally, half of the team worked during the day, and the rest of the team was at home with standby duties. This situation made it rather difficult to plan one's leisure time, because when the alarm came, the drivers had to report to work with about one hour's notice. In addition, drivers on standby were not permitted to drink alcohol.

One example of this difficulty is illustrated in how the teams worked through Christmas 1998. The temperature on December 24 (Christmas Eve) dropped to 0°C, and it started snowing. The teams—12 trucks and 1 road scraper—started to spread salt and plow at 3 p.m. and continued until 9:30 p.m. It should be mentioned here that in Finland, our main Christmas celebration takes place on Christmas Eve, in the evening. The next alarm came on December 25 (Christmas Day) at 3 a.m.; salt spreading and plowing continued until 1:15 p.m. The work had to be resumed the same day at 8:25 p.m. and was not finished until the next morning (December 26) at 5 a.m. Work resumed December 26 at 4 p.m. and finished at midnight. After this experience, the drivers were very unhappy because they had had no time to celebrate Christmas with their families.

The question of overtime has become problematic. According to the Finnish labor legislation, the amount of annual overtime is restricted to 250 h. An additional 80 h is possible with the consent of the worker and the permis-

sion of the shop steward. The teams were not used to taking these regulations into consideration, but now it has been brought to their attention through training, and they follow the regulations.

Some of the winter maintenance work was outsourced to the private sector. Cooperation between Finnra teams and the private contractors did not always come off without problems. In some cases, the quality of work by the private contractors was not high enough, and Finnra teams had to do extra work. Understandably, such occurrences did not promote mutual cooperation.

As to the savings in winter maintenance provided by this new system, no official report is available as yet. However, some personal observations have been made.

The cost of winter maintenance has not decreased; possibly it has increased. Teamwork seems to have increased the amount of overtime and work on Sundays. Although the team members receive no extra pay for overtime, work on Sundays and holidays (such as Christmas) is compensated. All in all, the number of hours worked per driver has increased.

The number of operative personnel has decreased, and the new role of the supervisors has decreased their overall numbers. The number of operative personnel used to be twice the number of the entire vehicle fleet, including vans and light trucks. Now, the figures are 1.3 to 2 times the number of the main vehicle fleet (that is, heavy trucks and graders). Nevertheless, the use rate of the equipment has increased. The lengths of the plowing routes have increased, which can be attributed to increased efficiency.

CONCLUSIONS

The requirements for a successful team concept are shown in Figure 5.

Building a good self-ruling team with cooperative working ability and tradition takes several years. This process cannot be accelerated, but it can be helped by professional facilitators through training. The ideal situation would be that a team could choose its own members, but in the case of Finnra Production's self-ruling worker teams, this was not possible. The teams are com-

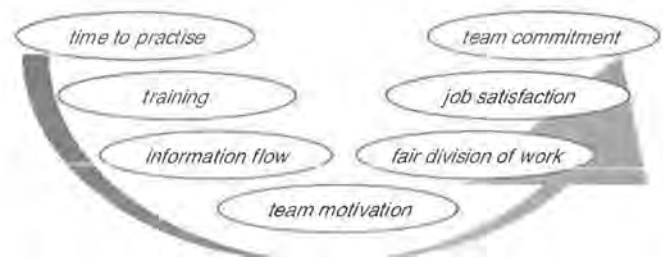


FIGURE 5 Requirements for a successful team concept.

posed of drivers that the maintenance contract areas already employ, and because Production is downsizing personnel, new recruits are not possible. In the future, drivers will be members in more than one team, as many Production employees already are.

In addition to training the entire team in cooperative working methods, ideally, each team has at least one induction trainer. In other words, one of the team members has been trained to train his colleagues in new working methods, use of equipment, and so on. There is a great need to maintain and continuously update the teams' professional competence. Finnra has a long tradition in training its own personnel to become trainers in their own expertise, whatever that may be. These trainers are chosen on the basis of their professional competence, willingness to train others, and suitability to work as trainers.

Sharing information among the team members needs to be improved. Some drivers have complained that infor-

mation does not reach all members of the team equally. It has been suggested that to remedy the situation, team meetings be organized regularly—on a weekly or twice-monthly basis.

Meetings also would help to build motivation among team members. The fact that everyone receives the same wages regardless of their input may weaken an individual's motivation, especially if the division of work is considered to be unfair. There always are some people who are naturally very productive and others who need more time to accomplish assigned tasks. Self-empowerment that comes from bringing decision making closer to the workers makes the work more interesting and consequently helps to increase motivation. Being able to take one's own initiative in carrying out one's work and being commended for it is also motivating. Better job satisfaction works toward greater commitment, which in turn leads to greater efficiency—and that is the objective of self-ruling worker teams.