

SKANSKA Title: Application of Heavy Equipment Telematics in Infrastructure Projects

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Introduction

Existing heavy equipment telematics capabilities are not being used to their potential. On larger infrastructure projects there are generally multiple contractors and telematics systems involved. In collaboration with Skanska there is an interest to look at how the telematics can be used more efficiently with mixed equipment fleets. Current and future aspects are compelling, especially in relations to optimization and environmental gains.

Case

Rv. 3 /rv. 25 Løten–Elverum is located just outside Elverum in Hedmark, Norway. The project will build 26 kilometers of road in just over two years, and with a price of 5.5 billion Norwegian kroner it is the biggest contract issued for a infrastructure road project in Norwegian history. There are multiple contractors and equipment manufacturers involved at the project. Skanska currently has a total of 30 heavy equipment at the case with active telematics.



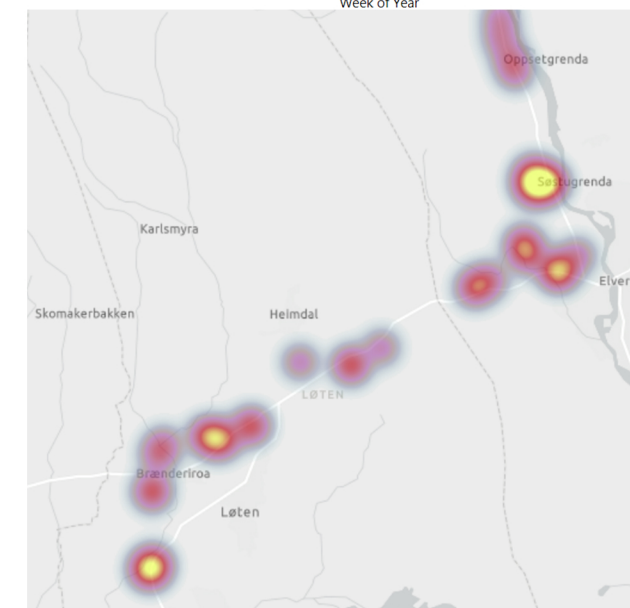
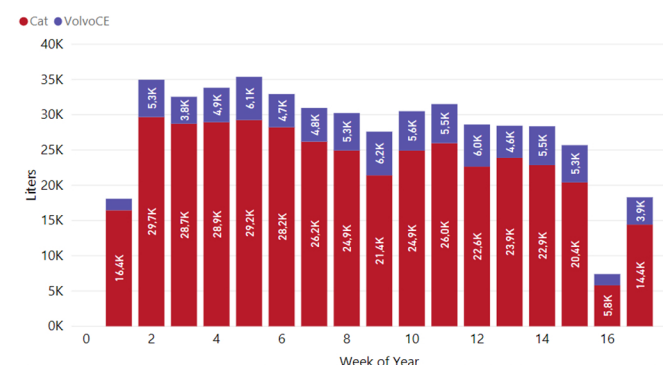
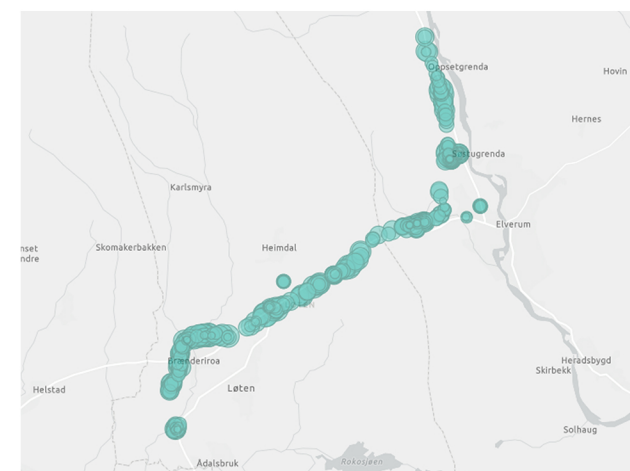
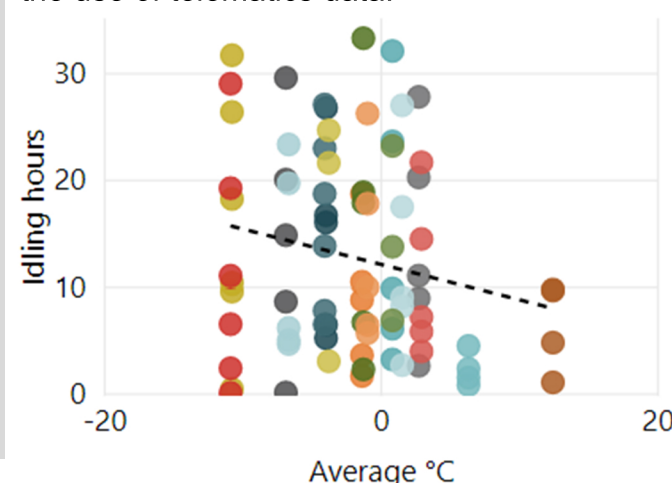
Research questions

To instigate a process that will give answers to the problem statement, the following research questions were asked:

- In what way can data from the heavy equipment be collected more efficiently?
- What uses can be made of the telematics data from Rv. 3 /rv. 25 Løten-Elverum?
- How can heavy equipment telematics be of use to future procurements?

Results

Through the automation of collecting telematics data, mixed fleet data are juxtapositioned to give insight into site activities. Literature reviews and tests show that data relating to fuel consumption, machine hours, productivity, and equipment location are central to optimization. Additionally, contractors can quantify their performances and environmental impacts to be applicable in procurement processes through the use of telematics data.



Conclusion

The following conclusions were made:

- **In what way can data from the heavy equipment be collected more efficiently?**
More efficient data collection can be achieved by including data from different telematics providers and contractors at the project, to get a more complete view of the site.
- **What uses can be made from the data results from Rv. 3 /rv. 25 Løten-Elverum?**
The principal uses of the data are monitoring trends relating to the follows data: Fuel consumption, machine hours, productivity, and allocation
- **How can heavy equipment telematics be of use to future procurements?**
Telematics data can be used to give better estimations in future procurement tendering processes. By applying life-cycle costs to viable telematics data, contractors can quantify their performances and environmental impacts to be applicable as documentation in future procurement processes. This will ensure better competitive bidding. It can also provide documentation throughout the execution phase, which is requested by the BVP method.