

# Advanced Virtual Aptitude and Training Application in Real Time (AVATAR)

## Stakeholder-oriented article WP3



**What kind of feedback do harvester operators want?**

**How do harvester operators want the feedback to be presented?**

**Exploring the need for feedback on performance**

**Evaluation of a feedback application**

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## Exploring harvester operators' need for feedback

Harvesting is a highly complex task for the operator. Modern harvesters optimise the use of each stem based on digital bucking instructions, together with precise measurements of the tree length and diameter in the harvester head. In addition, the operator must register tree species and quality-affecting stem defects for each stem and make sure to take the correct nature conservation measures, avoid damaging cultural heritage sites and minimise damages to the forest soil. When developing different types of operator support systems, it is of great importance to know what type of feedback is needed and requested by the operator and how the feedback should be presented. Some measures have been taken to improve feedback on performance to harvester operators. For example, Swedish forest company Vida has developed a feedback application with the aim to easier supply their harvest operators with feedback on what they have produced.

The project had a qualitative approach, consisting of interviews and individual evaluations with harvester operators from Sweden, Norway, and Germany to investigate what kind of feedback that the operators prefer. In addition, the operators, as well as a group of usability experts, evaluated the usability of the feedback application developed by Vida.

During the evaluation of the feedback application, the harvester operators mainly identified usability problems that were connected to the functionality of the application and their potential for improvement. The usability experts to a greater extent identified problems and potentials connected to the interface of the application.

The project concluded that there is a clear need for improved feedback to harvester operators. However, both the type of information requested, as well as at what interval the information is wanted, varies between operators. This implies that it is important that the feedback can be customised. The operators that used the feedback application from Vida acknowledged the benefits of using it, to maximise the value of what they produce. Furthermore, it could be concluded that involving end-users in early stages of development reduces the risk of developing an artefact that will not be used to its full potential.

To maximise the benefit of a tool for operator feedback, it is important that the end-users fully understand the information that is presented to them and understand how they can use it to change their ways of work to increase revenue. Hence, future work on the subject could be to investigate how the key figures are best presented to the operators.

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