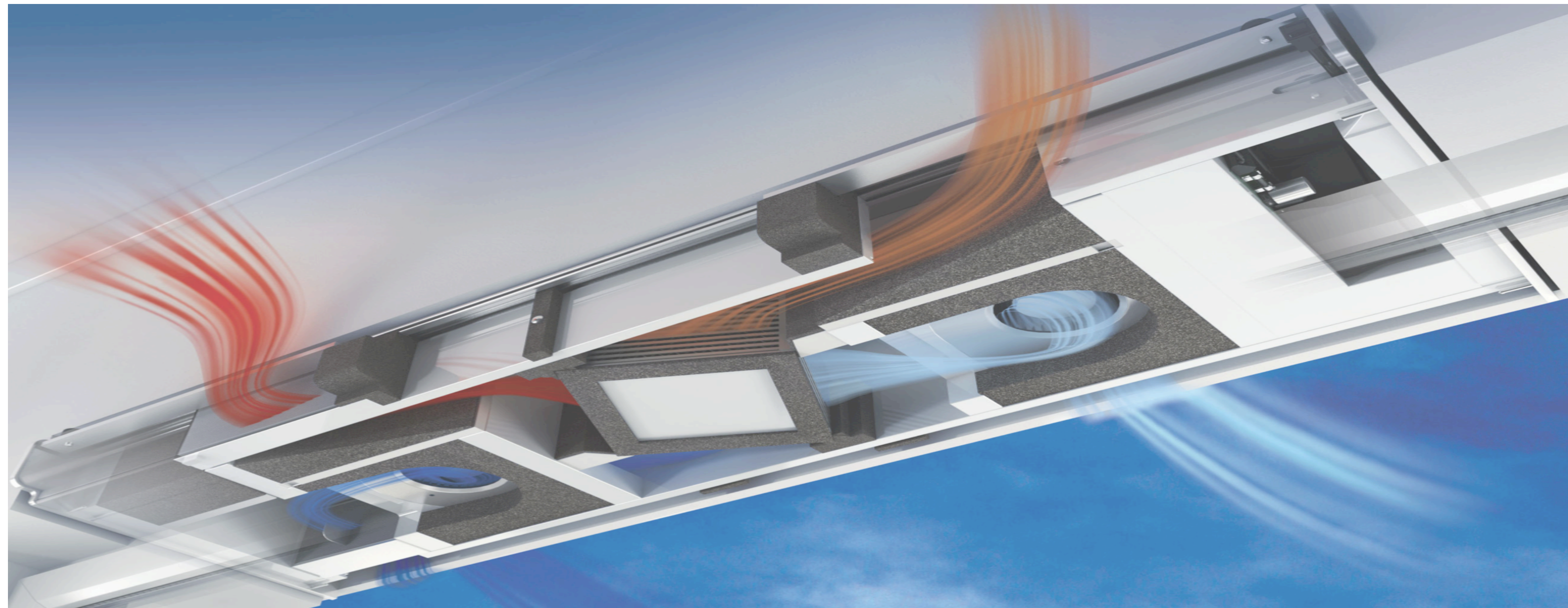


# Optimization of single room ventilation systems

## Initial situation

In new construction and in building renovation there is a high demand for airtight building techniques. This causes a lack of necessary natural air exchange with the environment. Ventilating systems solve the problem but have a downside. According to the MINERGIE® standards the sound level during the night is elevated.

The company EgoKiefer AG developed a ventilation concept that achieves the required MINERGIE® standards. The aim of this project is to define a new control system for the Ego®Fresh.

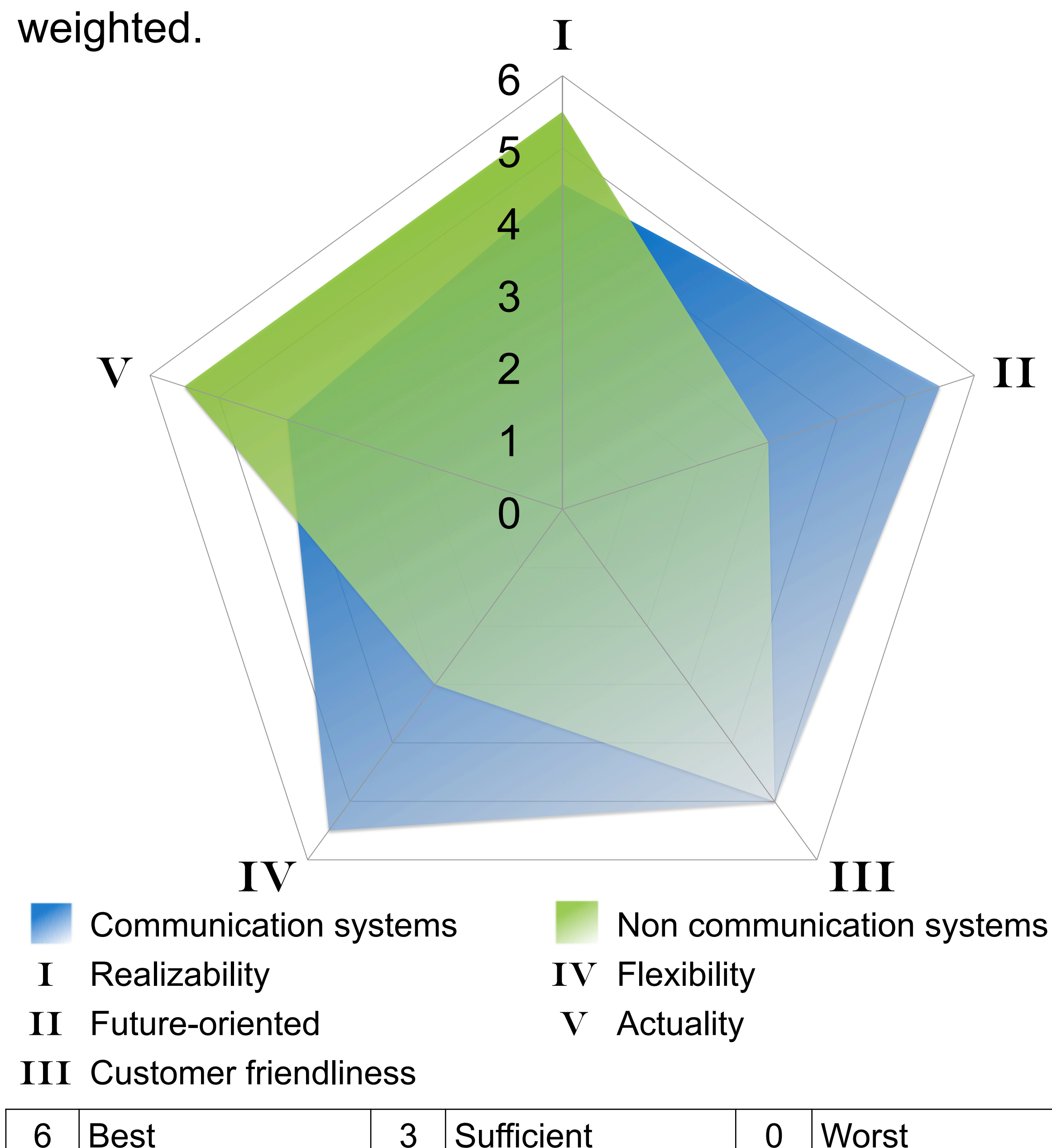


## Methods

The project team measured the sound level of the Ego®Fresh and analysed the control system of the device. For an asynchronous control the team looked at different communication systems such as KNX or radio were investigated

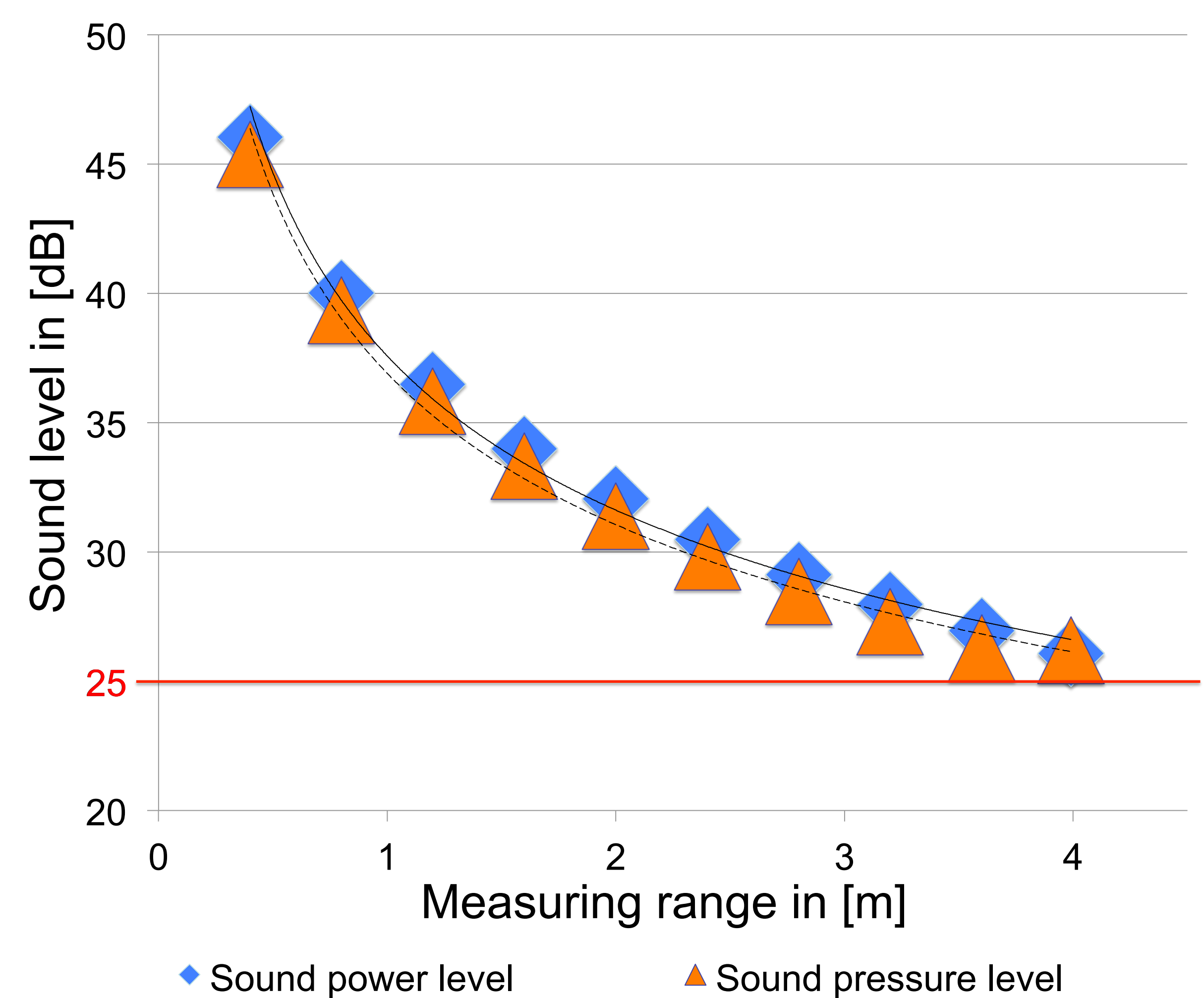
## SWOT-Analysis

With the SWOT-Analysis we ascertained which communication system is most suitable for the Ego®Fresh. The blue area constitutes the communication system and the green area represents the sensor techniques such as pressure, temperature or VOC sensors. A Comparison of the two areas, reveals that the non-communication system is more suitable mainly because criteria points I and V are more heavily weighted.



## Sound level diagram

The graph shows the sound level measurements. The upper limit set by the MINERGIE® standards is 25 dB as indicated by the red line. This limit is only set during the night and for the bedroom. The diagram reveals that the Ego®Fresh is unable to meet the requirement when operating at full power.



## Conclusion

The team recommends further investigation into pressure sensor technology. The handling of the system is easier and for a detached house more convenient. Such investigations will have to be done in a future projects. In addition to the communication system, the team recommends these new requirements for the new control system: pressure, temperature, VOC sensors and several levels of power.