

## Past, present and future of NVH in Hungary – Memories and views of an acoustical bison

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### Abstract

Noise, vibration and harshness – these are notions which are mainly used in the automotive industry. Nevertheless, noise and vibration are relevant issues in a much wider area, too. As an opening lecture of a hopefully long series of successful conferences, this introductory lecture goes back to some other industries and branches of environmental protection as well, and targets a number of related issues such as acoustic methodologies, education, cooperation between industry and academia and a few other topics.

Even though Hungary was a major player in vehicle manufacturing by its bus factories over decades, **NVH had not been in the focus of developments**. The famous Hungarian bus manufacturer Ikarus was founded in 1949, and produced initially traditional buses both with integral body and chassis, applying Csepel diesel engines. We do not know much about the noise levels of these buses. As from 1953 a new and very successful construction was introduced: the rear-engined Ikarus 55, which was necessarily quieter. Later a number of type families came: the series 200, 300 and 400, all with a large number of engines of various brands and characteristics. As a result, the developers were not able to harmonise the structure and the engine and the products were therefore far from optimal, nor was the market very demanding with respect to interior or emitted noise levels.

The situation has changed after the Council Directive 70/157/EEC was issued in February 1970. Exterior noise limits were introduced and reduced since then in many steps, resulting in a situation that currently a heavy truck should emit lower noise levels than a car in 1970. In order to meet the noise limits, a coordinated R&D project was run at the end of the eighties, with participation of Ikarus, Research Institute for Transport Sciences and Research Institute of Automotive Industry. The project was successful, but the sociological and political changes have not allowed to introduce the obtained results into series production.

**Railway noise** is usually less disturbing for the citizens, but some new plans of high traffic tracks make the issue a “hot potatoe” in this country. The basic question is here, whether the dominant source of noise is the track or the vehicles, and what are the most effective methods for noise mitigation. The results of a reasonably comprehensive research have revealed that the dominant and most relevant sources of railway noise are the vehicles, the effect of control measures on the track is rather limited.

The **noise control methodologies** in this country went through an enormous development, as from the most primitive “cut-and-try method” to the most sophisticated source identification and ranking methods.

And what about the **current situation** and the **future perspectives**? The R&D groups and departments of some automotive companies and university laboratories have undoubtedly caught up with the European standards up to now, both in terms of equipment and the staff’s capabilities. The key issue is, whether the universities will be able to release, and companies to attract sufficient number of well-educated young engineers and scientists, who can then follow the fast technical development and come out with high quality products. May this conference contribute to this goal as much as possible.