



AIT AUSTRIAN INSTITUTE OF TECHNOLOGY

The AIT Austrian Institute of Technology is Austria's largest research and technology organisation. With its seven Centers, the AIT regards itself as a highly specialised research and development partner for industry, and its researchers are tackling the key infrastructural challenges of the future: Energy, Health & Bioresources, Digital Safety & Security, Vision, Automation & Control, Transport Technologies, Technology Experience and Innovation Systems & Policy.

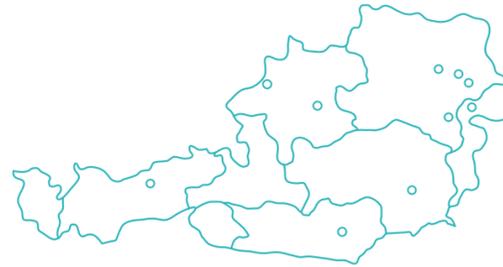
CENTER FOR TRANSPORT TECHNOLOGIES

Mobility is a core pillar of human society and therefore a central factor in our economic system. At the AIT Center for Transport Technologies, around 200 experts are working on solutions for sustainable, safe, intelligent and thus future-proof mobility. The focus of the research and development work is on material-based lightweight design, on the electrification of the propulsion train and the storage of electrical energy, as well as on a resilient and safe transport infrastructure. This also includes environmentally compatible and intelligent production technologies for mobility components. Comprehensive system know-how, scientific excellence, state-of-the-art laboratory infrastructure and many years of international experience enable AIT experts to drive innovations in the field of climate-friendly mobility and thus to serve industry and society already today with the solutions of tomorrow.

MORE ABOUT VIBES:



<https://www.ait.ac.at/en/vibes>



1.400
EMPLOYEES

10 LOCATIONS

7 CENTERS

**AUSTRIA'S LARGEST
RESEARCH AND TECHNOLOGY
ORGANISATION**

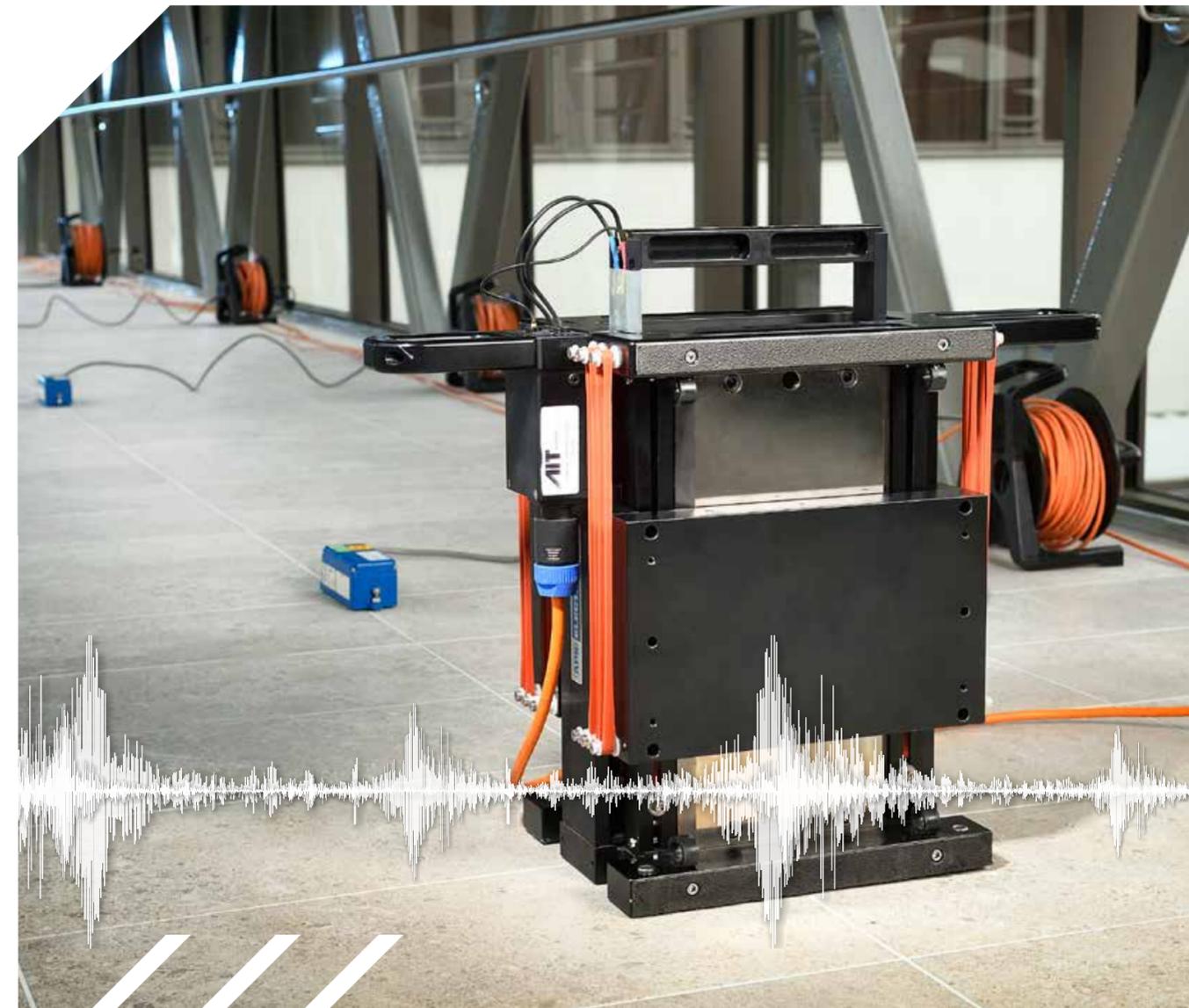
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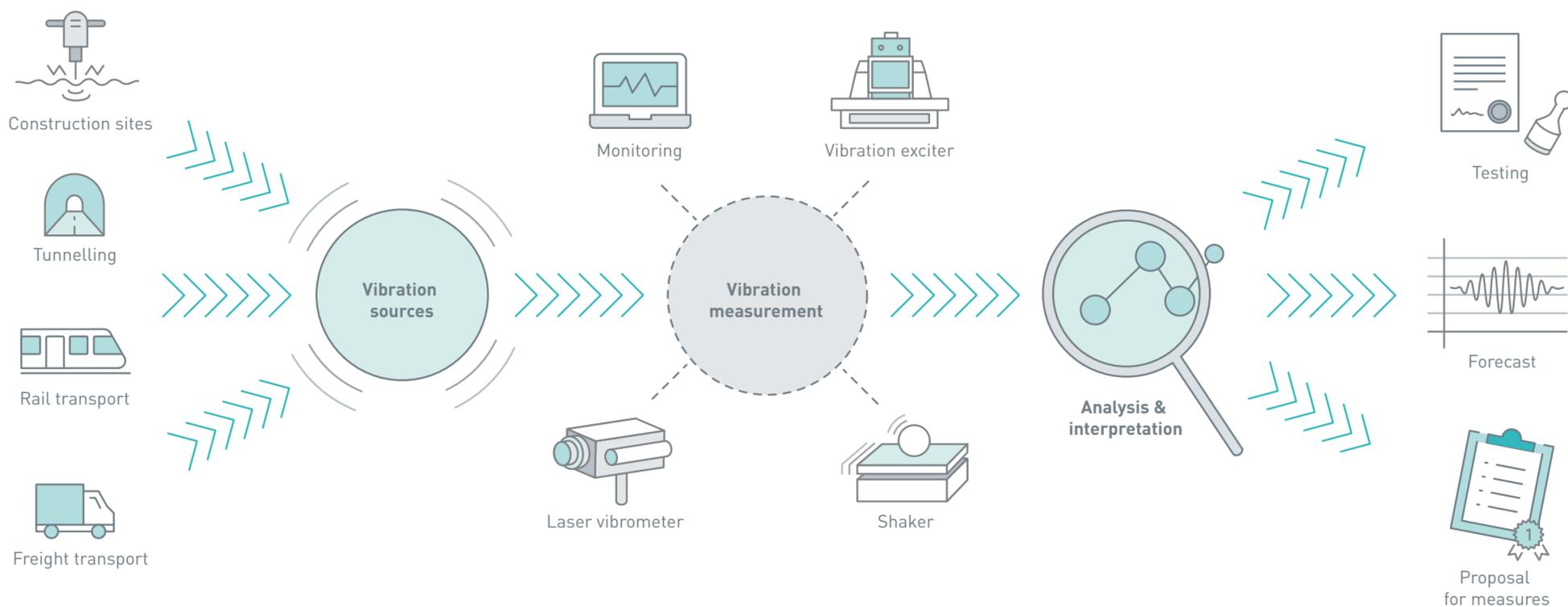
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VIBES Vibration analyses and prediction

VIBES: VIBRATION AND SHOCK MEASUREMENT AND ANALYSIS

We measure vibrations and shocks, assess their effects on people, buildings, and the environment and derive measures for vibration protection and component optimisation.



THERE ARE NUMEROUS CAUSES OF VIBRATIONS IN YOUR ENVIRONMENT

Vibrations and shocks are triggered by a wide variety of sources and impact neighbouring residents, buildings and infrastructural facilities. These include, for example, tunnel construction work, construction work such as demolition and blasting, urban and regional rail transport or heavy freight transport.

USING INNOVATIVE MONITORING SYSTEMS AND MEASURING METHODS

We analyse and measure vibrations using natural or forced excitation methods. This includes, for one, the MoSeS vibration exciter or the Long Stroke Shaker to determine the soil properties on site. In addition, the laser vibrometer allows us to measure wind-induced vibrations in structures over longer distances without using direct sensors.

FORECASTS, EVALUATIONS AND TESTS FOR YOUR REQUIREMENTS

From our numerous measurements, we gain crucial insights such as vibration forecasts for construction work or forecasts of vibration immission caused by traffic. Based on our monitoring, we evaluate vibrations and can determine new threshold values. We carry out tests, and compile test reports and expert opinions.

VIBRATION IS A BURDEN ON THE POPULATION

Vibration is detrimental not only to buildings and structures, but also to people. Vibration and shock forecasts are therefore becoming increasingly important. At AIT, we have been investigating the propagation of vibrations underground and in buildings for years. Our expertise makes us the first stop for the recording and evaluation of vibration immissions.



VIBES IS YOUR VIBRATION PROTECTION FACTOR

We use our measurements, forecasts and monitoring for VIBES to develop targeted solutions for vibration protection, supporting infrastructure and building operators, engineers, and the construction industry. We ensure a smooth construction work process, can accurately predict vibrations and take precautionary measures, verify reference values to prevent damage to buildings and reduce disruptive vibrations and secondary noise.



As an accredited testing laboratory for shock and vibration tests, we use our electrodynamic shaker to conduct tests for electronic and electrical components, devices, machines, systems and superstructures for vehicle parts – optionally using a climatic chamber.

VIBES, APPLIED

- "Train Simulation" – patent-registered prediction model for train vibrations
- Forecast of vibration immissions caused by traffic
- Analysis of noise barriers under dynamic load
- Vibration simulations using MoSeS before and during construction stages
- Immission forecasts of industrial vibration sources/ forecasting dynamic interaction and resonance effects of mechanical equipment
- Monitoring in residential buildings and real-time alerts to construction supervision
- Measurement of vibrations and secondary noise



MoSeS: We use our Mobile Seismic Simulator (15-25 kN/1-80 Hz), a hydraulic vibration generator, to simulate vibrations or induce them in the ground and in buildings.