


VIBES.technology
engineering good vibrations

# A DECADE OF **ENGINEERING GOOD VIBRATIONS**

# FROM ENGINEERS, FOR ENGINEERS

**VIBES.technology** develops software for noise, vibration and harshness (NVH) engineering. Our mission is to move towards a quieter, more comfortable and more sustainable world, by reinventing noise and vibration engineering. To achieve engineering excellence, we keep close ties with our customers to create the right solutions to solve real NVH challenges.

# OUR APPROACH

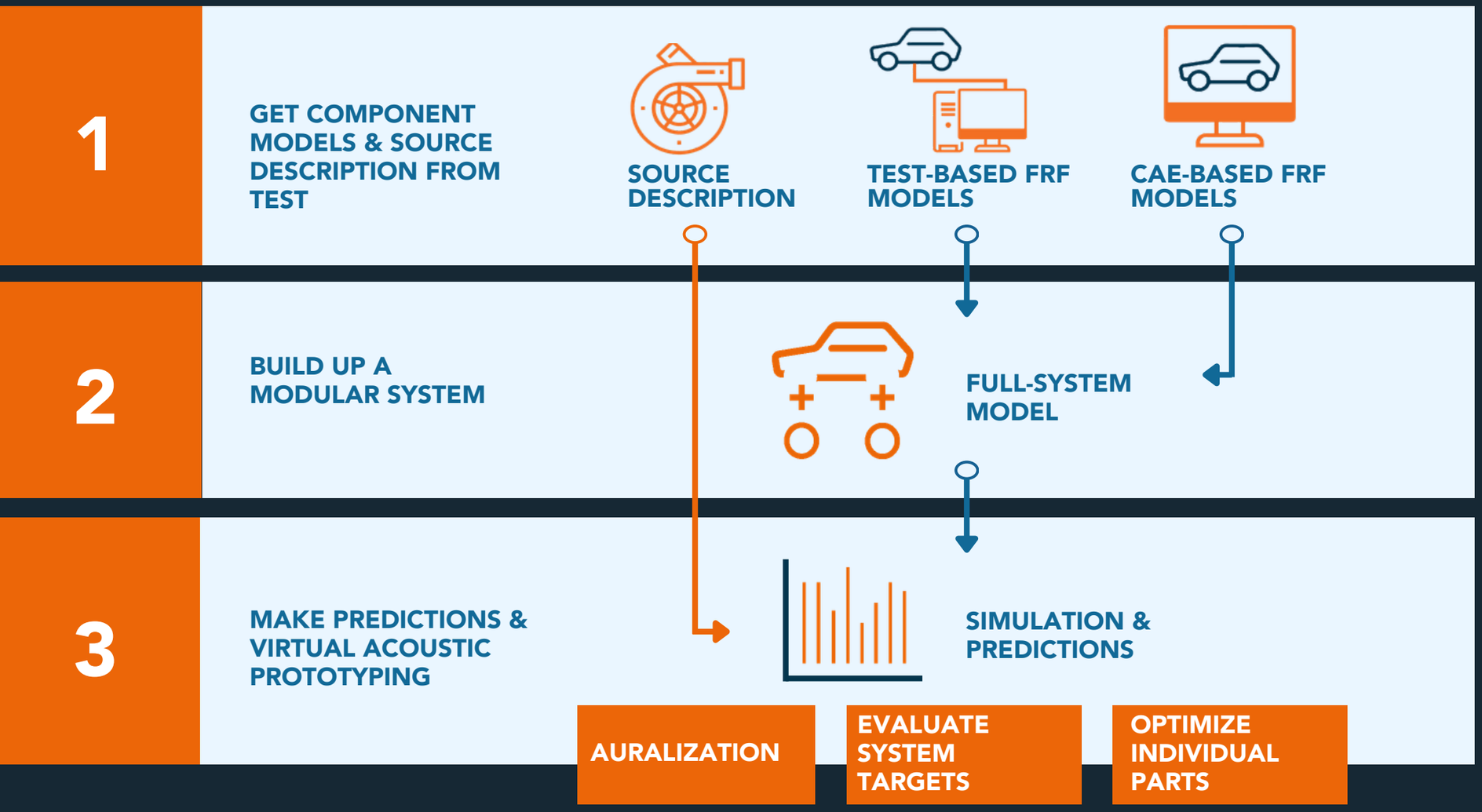
As simulation alone loses accuracy at higher frequencies, teams often add safety margins or wait for prototypes. We combine what you measure with what you simulate, using patented Transfer Path Analysis (TPA) methods, so NVH predictions hold up into the kHz range months before the first prototype. With this, engineers can design closer to the limit, with less material and fewer prototypes.



# CLIENTS WE SERVE

BMW · Mercedes-Benz · VOLVO · STELLANTIS · TOYOTA · nexteer AUTOMOTIVE · HYUNDAI · BOSCH · MAGNA STEYR · Valeo · ASML · Kubota

# HOW IT WORKS




## RESULTS IN NUMBERS

WITHIN

**1–2 dB**

of measured results, vs. 10+ dB for conventional approaches

UP TO

**40%**

fewer prototype cycles

UP TO

**3 months**

saved on TPA processing

# OUR SOLUTIONS

## HYBRID MODULAR ENGINEERING

### Combine test and simulation in one model

Fuse your measured and simulated components into one assembly model, which very few tools let you do. Test-based models stay accurate into the kHz range, CAE models come from any solver, and the model grows with your program from concept to full vehicle. Swap a part and see the effect before you build it.

**Products: DIRAC · SOURCE · COUPLE**

## SOURCE CHARACTERIZATION

### Measure once, reuse anywhere

With source characterization, you get blocked forces that stay valid wherever the source is mounted, ready for CAE, benchmarking and new platforms. Hybrid models can even reach tightly packed interfaces, such as on e-drive units.

**Products: DIRAC · SOURCE**

## TRANSFER PATH ANALYSIS

### An age-old paradigm, now done right

Your TPA results build on forces close to the real physical forces, the same whichever engineer runs the analysis. VIBES' patented X-DoF removes manual regularization, the biggest source of error in TPA.

**Products: DIRAC · SOURCE**

## TEST-BASED MODELING

### Full six-DoF accuracy into the kHz range

Virtual Point Transformation turns your measurements into six-DoF models, with rotational mount stiffness into the kHz range, beyond classic test machines. Live checks flag problems during your test.

**Product: DIRAC**

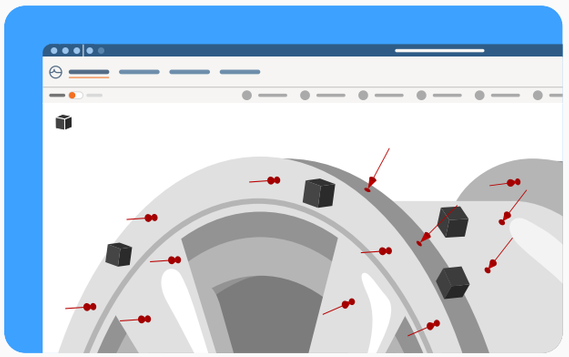
## MODAL ANALYSIS

### Know where your FE model is right

Measure, fit modes and validate your FE model in one application, with no exports in between. Quality metrics on every mode let colleagues, suppliers or OEMs check your fit.

**Product: DIRAC**

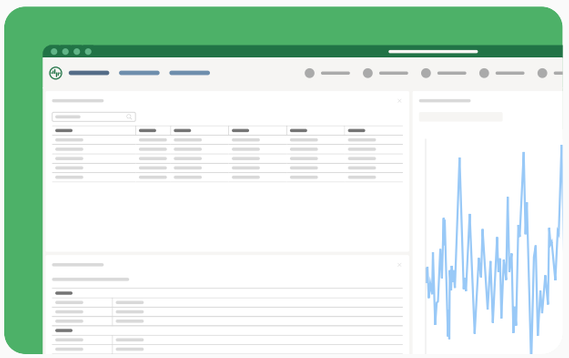
# OUR SOFTWARE



## DIRAC

**MEASURE**

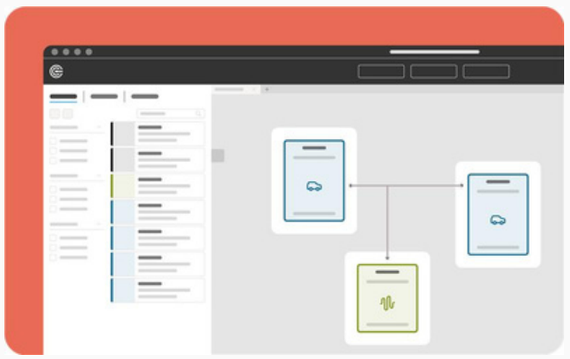
**DIRAC** is VIBES FRF testing software with Virtual Point Transformation. Plan your test, measure FRFs on components and full vehicles, and get quality-assured models valid to 3000 Hz, ready for any configuration or blocked force calculation.



## SOURCE

**CHARACTERIZE**

**SOURCE** identifies blocked forces and runs your TPA in one live workflow. Change a setting and results update instantly, with quality checks at every step, so you can trace every result back to the measurement.



## COUPLE

**ASSEMBLE & PREDICT**

**COUPLE** lets you assemble your test-based and CAE component models into one system using frequency-based substructuring. Predict NVH, swap components and compare variants before a prototype exists.




# EXCITED ABOUT COLLABORATING WITH **VIBES?** GET IN TOUCH FOR A **DEMO**

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