# Enterprise Lab: Through Modern Working Methods to Mathematical Success

**In the cooperative working method "Fraunhofer Enterprise Lab", several experts from companies and ITWM researchers actively work together in a team on topics and solutions. Our department "Financial Mathematics" thus implements innovations in direct collaboration with an automobile manufacturer.**

**8**
Subprojects in three years

In the focus of the "Enterprise Lab", everything goes hand in hand – from topic identification to market-ready solution. The symbiosis of research and corporate practice enables the implementation of creative ideas that are directly aligned with business processes. "With the Enterprise Lab, we have created an agile method in which companies can live interdisciplinary collaboration with us researchers and work collegially with customers", says Dr. Stefanie Schwaar, business unit developer "Accounting Audit." "They don't just order technologies from us in the classical way and we work off them, but we develop the task, strategy and solutions together.


*Our success is based on three components.*

© iStock/aldorado10

**“With the Enterprise Lab, we have created an agile method in which companies can live interdisciplinary collaboration with us researchers and work collegially with customers.”**

**Dr. Stefanie Schwaar**
Business Unit Developer “Accounting Audit”

## Example Data Science in the Automotive Industry

One example of the successful implementation of the concept is the collaboration with a premium car manufacturer. “Here, we have already been working on a wide variety of topics since 2018. The team keeps changing, depending on the expertise required,” says Schwaar. In the lab, companies have direct access to the know-how of the scientists. Everything revolves around challenging data sets in the area of testing and forecasting.

Thus, completely new possibilities for explorative data analysis have emerged in the Lab, such as a specific anomaly detection: The Fraunhofer ITWM solution supports the merging of complex data from different sources, aggregates them automatically to an efficiently usable data set, and visualizes them interactively. Statistical and machine learning (ML) methods are used to automatically search for anomalies in the data. In this way, potential incorrect entries or presumably underbilled repairs can be investigated in a targeted manner and major sources of error can be identified at an early stage.

## Interdepartmental Project Planning in the Lab

The flexible working model enables strategic cooperation – even across departments. In the lab’s latest project a team from the “Mathematics in Vehicle Development” and the “Financial Mathematics” department is working together on the digital processing of complex vehicle analysis protocols. That means Big Data on a grand scale. The range of topics for using the data is extensive and constantly changing. When a new car goes on the market, there are various questions to be answered such as: What is the predicted damage rate? What are the frequent repairs? What costs can be expected? For these and related questions, we provide data-driven support.

The development of an ML-supported interactive analysis tool is also the focus here. Experts from both departments work closely with the teams from the customers’ teams, and a steering committee ensures the conceptual orientation and goal setting. A real formula for success in modern project work.

**www.itwm.fraunhofer.de /datascience-car**

### Contact

Dr. Stefanie Schwaar
Business Area Developer ”Accounting Audit” of the Department ”Financial Mathematics”
Phone +49 631 31600-4967
stefanie.schwaar@itwm.fraunhofer.de