

# Software solutions

RA Consulting's three business units combine to meet the diagnostics and standards needs of automotive customers worldwide



RA Consulting GmbH of Germany (RAC) has been in business for over 20 years and is known in the development departments of auto manufacturers as well as hundreds of their Tier One suppliers and development partners. Long-lasting products and solutions, focused on their needs, are the reason for this success.

RA Consulting has three business units, namely automotive, software

company's automotive business unit include solutions for control unit diagnostics, measurement and calibration. The diagnostic solutions have more than 10,000 users, with well-known product names such as Silver Scan-Tool, DiagRA-D and DiagRA-LE.

The Silver Scan-Tool is specialized on OBDII /EOBD and HD-OBDDiagnostics. Both tools, Silver Scan-Tool and DiagRA D, contain functions to support the SAE J1699-3 OBDII Compliance test cases tool. Currently the implementation of the WWH-OBDD (World Wide Harmonized – Onboard Diagnostics) support after ISO 27145 is in progress. The goal of the standard WWH-OBDD is to replace the regional standards of vehicle onboard diagnostics with a global standard.

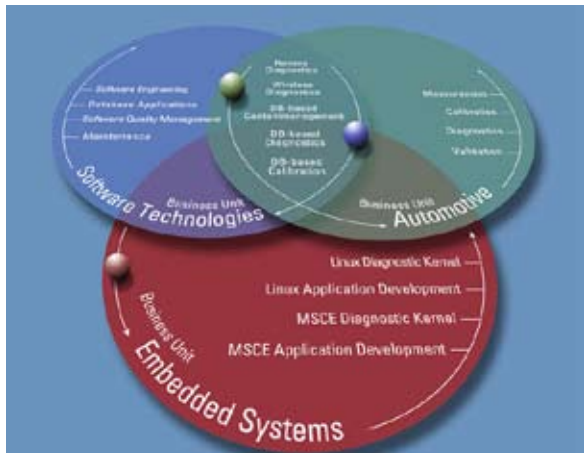
DiagRA-D is a development tool and lets the user access the workshop diagnostic services of several manufacturers, has a complete OBDII, EOBD and HD-OBDD functional group, and supports the advanced access of very special and quite deep information of the internal fault code memory of engine control modules – deemed very important for application engineers.

DiagRA-LE is a customizable, yet standard diagnostic software which can be configured to the type of use.



RIGHT: RA Consulting's headquarters in Bruchsal, Germany

BELOW: The company's business units of automotive, software technologies, and embedded systems



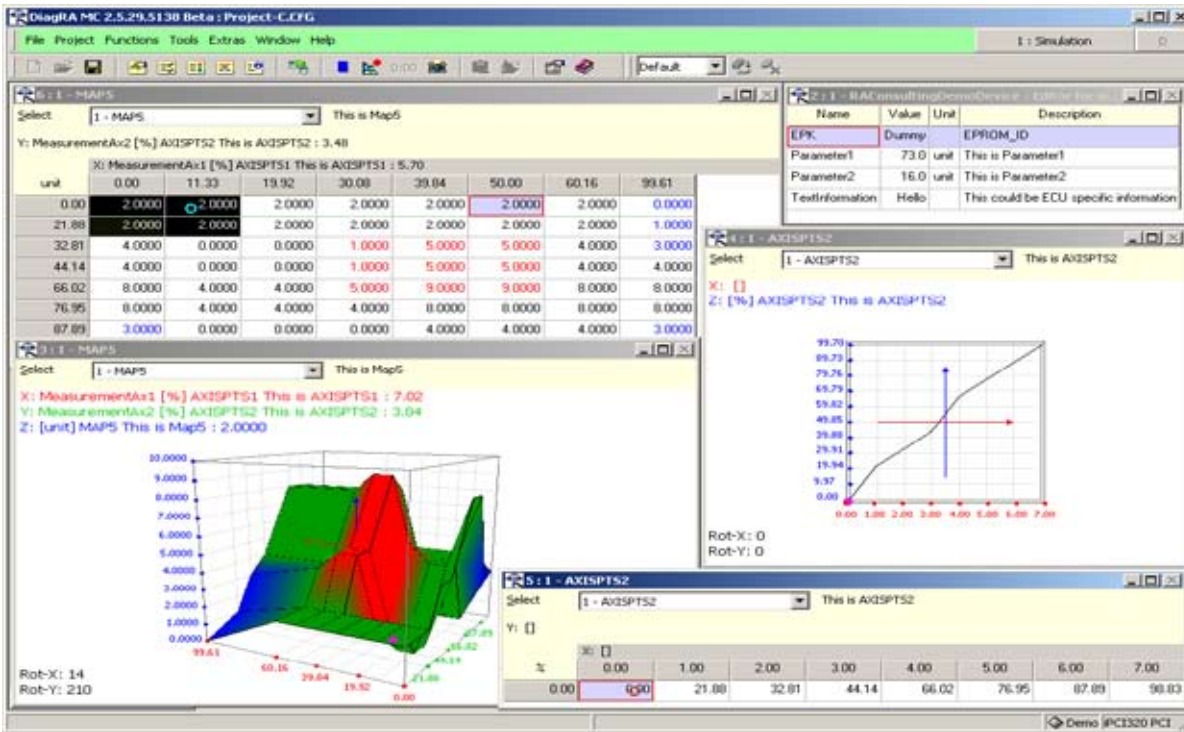
technology and embedded systems, which work together to put comprehensive knowledge into solutions for automotive and non-automotive customers alike.

The main activities in the

The Software Technology unit delivers solutions for data management and analysis and has very profound database know-how. RAC was one of the first Oracle partners in Germany, and remains an Oracle Gold Partner. The merging of automotive and software/database technology is a positive for the company's customers, as automotive issues can be intermixed with data management solutions.

Embedded Systems take advantage of software solutions for embedded devices like telematic devices that have to read-out automotive data from a vehicle and transfer it to a web server, where the data will be analyzed and stored in a database. Your company will profit from all-embracing knowledge available inside of one company.

In theory, Diagnostic services and data transfer protocols, which are standardized by SAE and ISO, should



LEFT: The DiagRA MCD Toolset is an applications and diagnostics toolbox for electronic control units in the automotive industry

make it possible to access and read diagnostic data from each control unit of each car with only one test device, with appropriate tester software.

Unfortunately each car manufacturer has defined its own standards interpretation, and this goal fails. OBDII and EOBD regulations help, but they are focused primarily on the emission-relevant controllers and describe also only a subset of vehicle information available.

RAC's diagnostic tools can help. They are designed to manage manufacturer-specific details, part of diagnostic data sets which can be extended if requested. RAC's tools are flexible. Depending on the car manufacturer or the controller type, advanced functions are implemented that make the software a valuable tool for thousands of development engineers worldwide. Scripting, flash programming and several possibilities

for remote control are examples for these advanced functions.

The company's latest diagnostic tool, DiagRA-LE, not only provides many of the functions of the DiagRA D tool, but is also capable of custom configuration. As these customizations can be stored, users can have essentially different versions of the software for mechanics, engineers or other end users with just a single license.

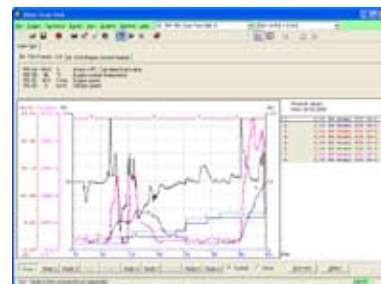
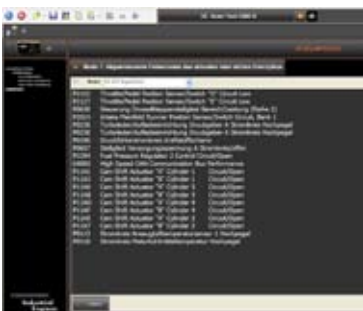
For example, use can be limited down to a single vehicle identification number (VIN), or single controller, e.g. for the use only with engine controllers. The DiagRA-LE tool is so popular that it is already used in production lines, service workshops and by racing teams.

Besides its use in manual analysis mode, the tool can provide pre-defined automatic functions to simplify its use in recurring actions.

For example, the entry of the VIN into all ECUs in a production line, the read-out or deletion of the fault code memory of all ECUs, or the stepwise change of the idle speed of an engine can be all started with a simple click. This automatic analysis mode can be defined by RAC or by the customer tool administrator, and can then be used manually. All data can be stored or recorded in standard formats for further analysis or for documentation and archiving.

In conclusion, RAC's tools support a wide range of communication interfaces, including SAE J2534-compatible devices, K-Line, CAN and FlexRay, Bluetooth and WLAN devices.

The challenge to develop and maintain the blending of standards and customer driven software tools is the focus of RAC...that is its mission. ◀



FAR LEFT: DiagRA-LE is a customizable, yet standard diagnostic software

MIDDLE: The Silver Scan-Tool in operation

LEFT: DiagRA D for the selection of diagnostic data from vehicle control units