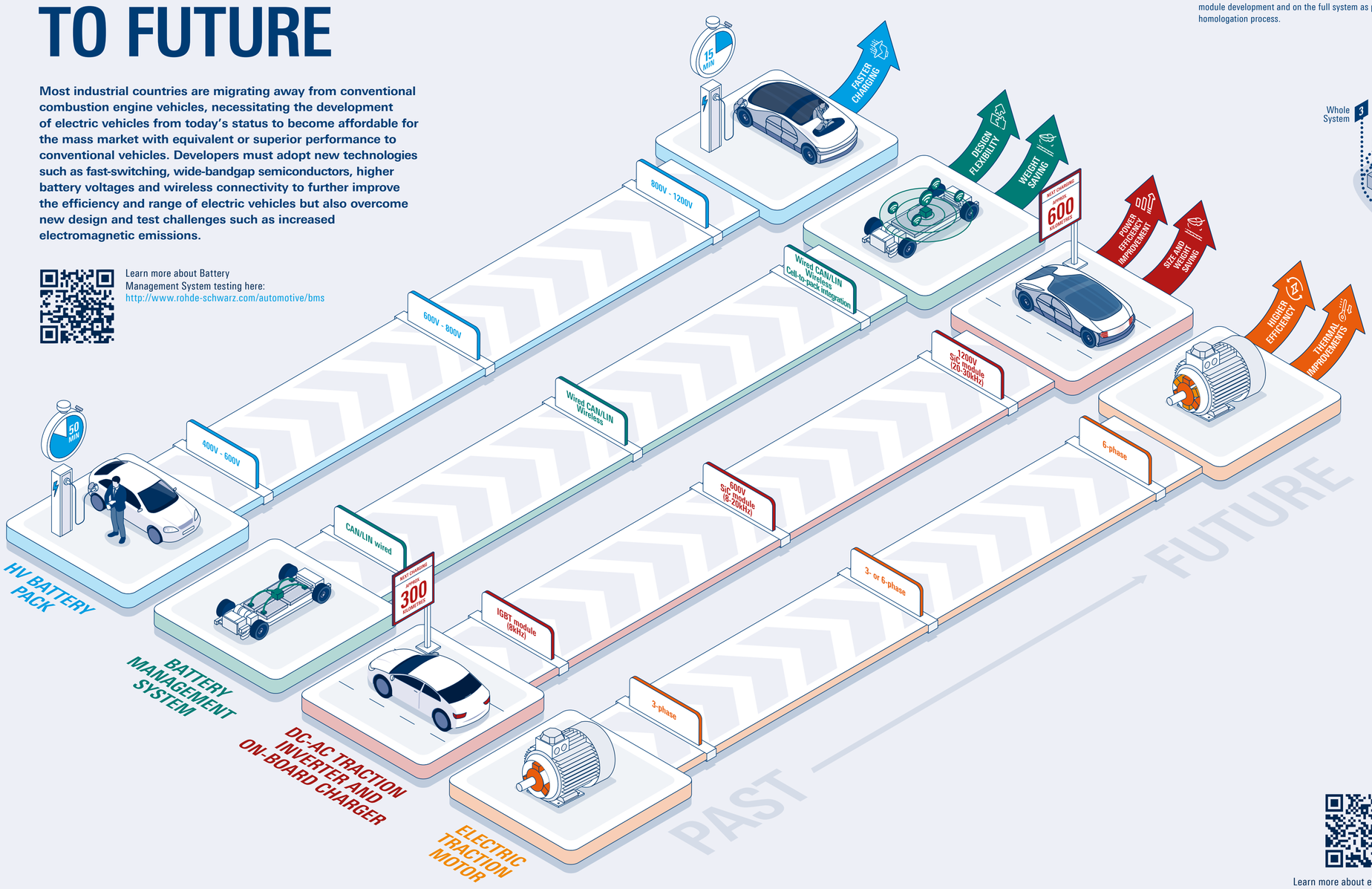
ELECTRIC DRIVETRAIN EVOLUTION – FROM PAST TO FUTURE

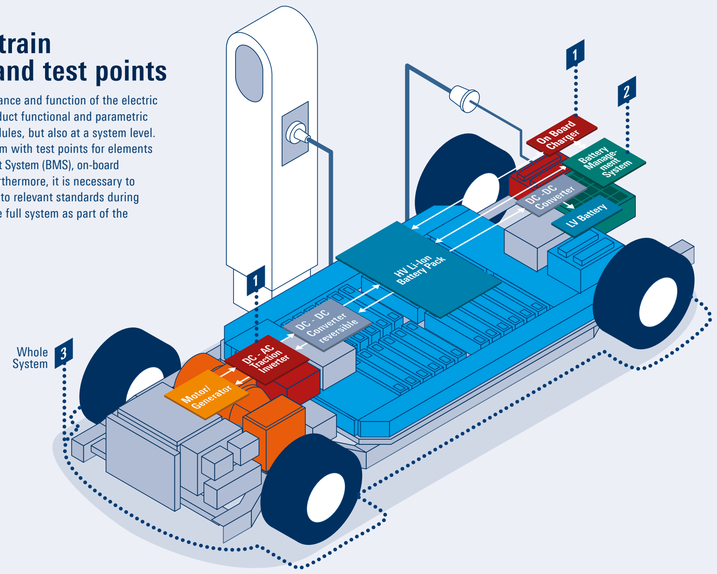
Most industrial countries are migrating away from conventional combustion engine vehicles, necessitating the development of electric vehicles from today's status to become affordable for the mass market with equivalent or superior performance to conventional vehicles. Developers must adopt new technologies such as fast-switching, wide-bandgap semiconductors, higher battery voltages and wireless connectivity to further improve the efficiency and range of electric vehicles but also overcome new design and test challenges such as increased electromagnetic emissions.

Learn more about Battery Management System testing here:
http://www.rohde-schwarz.com/automotive/bms



Electric drivetrain architecture and test points

To optimize the correct performance and function of the electric drivetrain, it is essential to conduct functional and parametric tests not only on individual modules, but also at a system level. Here we can see a typical system with test points for elements such as the Battery Management System (BMS), on-board charger and traction inverter. Furthermore, it is necessary to perform EMC testing according to relevant standards during module development and on the full system as part of the homologation process.



eDriveTrain Test Solutions

	1 TRACTION INVERTER TESTING	2 BATTERY MANAGEMENT SYSTEM TESTING	3 EMI DEBUGGING AND PRE-COMPLIANCE TESTING
Application			
Test focus	Pulse Width Modulation PWM signal analysis Power efficiency Control loop stability verification DC-link capacitor characterization Double pulse test	Battery cell emulation (SoC, charge/ discharge characteristics, internal resistance etc.) Wireless and wired BMS development, verification and production testing.	Initial check that radio emissions are compliant with relevant standards. Focus on emissions caused by high frequency switching of SiC modules.
Products			
	 R&S®MX05 oscilloscope	 R&S®MX04 oscilloscope	 R&S®RTO6 oscilloscope
	 R&S®ZISO isolated probing system	 R&S®MGM202 DC power supply	 Current and voltages probes
	 R&S®ZNB3000 vector network analyzer	 R&S®CMW100 communications test set	 R&S®ZNB3000 vector network analyzer
	 Zurich Instruments MFIA impedance analyzer		
	 ZES ZIMMER LMG671 power analyzer		

Learn more about electric drive train and applications here:
www.rohde-schwarz.com/automotive/eDrivetrain

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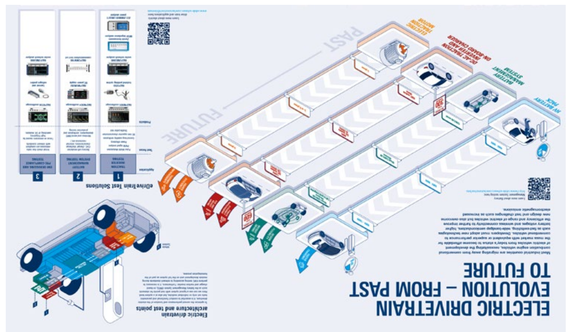

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