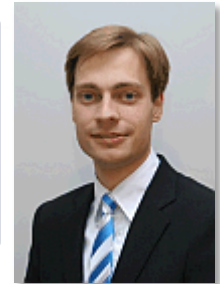




"In order to offer electric vehicles which will be accepted by customers, low priced and efficient batteries have to be produced."

Automotive IQ editor, Will Hornick, recently interviewed Heiner Hans Heimes, chair in production management of the Laboratory for Machine Tools and Production Engineering (WZL), RWTH Aachen.



Automotive IQ

Please describe your position within your organization.

Heiner Heimes: I work as a research assistant at the Laboratory for Machine Tools and Production Engineering (WZL). I am employed in the research group "Production of Electric Vehicles" as the chair for production management and my focus is on the Production of Lithium-Ion Batteries.

Automotive IQ

In your opinion, what are the most pressing challenges related to battery production for the automotive industry?

H.H.: There are numerous challenges related to battery production. At the moment German manufacturers are not able to set up a production line for the series production of lithium-ion batteries. The individual production processes are neither completely automated nor designed for high quantities. Moreover, the battery cells have considerable differences in quality and the production processes are usually not energy and resource-efficient. In contrast to the production of the module and the package, the production of lithium-ion cells is characterized by various production technologies and heterogeneous competence fields. For this purpose, the machines and plants for the cell production are offered by different companies. An international research, with more than 300 machine and plant manufactures, showed that only a few machine and plant manufactures are able to cover major parts of the production chain with their own plants. Rather, the value chain of the cell production is covered by a huge number of specialists, which have extended their competence in one production step.

Automotive IQ

Can you elaborate on possible solutions to the top two or three challenges that the industry is currently facing?

H.H.: In order to set up efficient production lines, the operator of a production line for lithium-ion batteries has to identify suitable machine and plant manufactures for each process step. He has to inform the companies which production technology has to be used. The operator also has to connect the respective machines and plants to an efficient overall process. These tasks can only be solved within strong industrial and research networks with a high level of information exchange. It is also important that the machine and plant manufactures have a deep process understanding in order to identify their own potentials and to work in networks.

Automotive IQ

Given the current manufacturing premium on batteries for EVs and HEVs, what needs to happen in order for these vehicles to continue becoming more competitive? (i.e. production, innovation, regulation, incentives etc.)

H.H.: In particular, the high purchase costs currently prevent the breakthrough of electric vehicles. The biggest cost factor is the battery, 60 percent of the production costs and 40 percent of the total costs are caused by the battery. In order to offer electric vehicles which will be accepted by customers, low priced and efficient batteries have to be produced. The cell has the most influence on the total costs of the battery. The battery cell causes 47 percent of the battery costs. This share offers an opportunity to reduce the costs of electric vehicles.

Automotive IQ

In light of the recent trouble Boeing is having with the Lithium-ion batteries in its Dreamliner, how do you think this will challenge end user perception of automobiles equipped with Lithium-ion batteries?

H.H.: I think the fear about the new technology is, besides the price, one of the biggest problems for the acceptance of electric cars. People are unsettled about what happens in case of a crash or technical problems and consequently buy cars with "old" approved technologies. But the accidents inside the Dreamliner will strengthen this attitude only a little bit because the customers do not directly compare batteries for a plane with the batteries inside a car.

Automotive IQ

Thank you for your time.